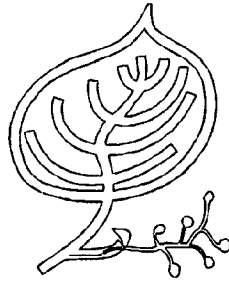


MARYLAND

Harford  
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prehensive Forestry Program Implementation

**Harford County Coastal Zone Management Program**

Comprehensive Forestry Program  
Implementation

Brian H. Williams  
April 1992

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\* \* \*

## **I. INTRODUCTION**

In fiscal-year 1990 the Harford County Department of Planning and Zoning (the Department) completed the first step in developing a Comprehensive Forestry Program by examining how well existing regulations, interagency coordination and public awareness of forestry issues addressed the identified goals of the Comprehensive Forestry Program (CFP).

The goals of the CFP were partially developed in response to the goals of the 1987 Bay Agreements and the findings of the 2020 panel report. These documents emphasized the importance of trees and vegetation in preventing further degradation of the water quality in the Chesapeake Bay through the protection of local waterways and wetlands. Additionally, influence for the CFP goals resulted from a development trend within Harford County to clear and mass-grade most forested parcels prior to construction.

In the development of these goals, water quality protection was given consideration. However, the targeted natural resource the CFP is designed to protect are trees and forested areas. The desire to protect trees and forested areas for all of the important environmental benefits they provide, including water quality protection, resulted in the development of the following goals for the CFP:

- A. Prevent the excessive loss of forestland; and
- B. Mitigate "necessary" forest loss during the development process; and
- C. Promote tree planting programs.

Using the identified goals of the CFP for comparative analysis, deficiencies with regard to the adequacy of existing Harford County environmental regulations was documented in the fiscal-year 1990 final report: Analysis of Harford County Forestry Issues as Applicable to Regulations, Implementation Procedures and Public Awareness. The 1990 report concluded that with the exception of the Chesapeake Bay Critical Area Overlay District, adequate protection for trees and forested areas is lacking within the existing Harford County regulations.

To respond to the identified CFP goals, and the identified deficiencies found in the existing Harford County regulations, the Department developed the following Subtask objectives for the fiscal-year 1991 to implement the Comprehensive Forestry Program:

- Subtask 1. Draft, and attempt to implement, a forest protection ordinance for Harford County. This ordinance will emphasize the retention of existing forest cover during site development.

- Subtask 2. Identify and attempt to implement, non-regulatory measures to protect forest resources in the County (e.g., conservation easements, transfer of development rights, cluster development, etc.). An emphasis will be placed on attempting to protect large, unfragmented forests and riparian buffers.
- Subtask 3. Explore the possibility of establishing and implementing a tree planting program at the County level.

It is the purpose of this report to provide an appraisal of how the goals of the CFP and the findings of the fiscal-year 1990 report have been addressed in the completion of each fiscal-year 1991 Subtasks. By completing these subtasks, the Department has effectively eliminated the forest protection deficiencies found within the existing County regulations and achieved the goals established for the Harford County CFP.

## **II. HARFORD COUNTY FOREST CONSERVATION LAW**

### **A. Background**

To provide for the protection of forested areas within Harford County, the Department of Planning and Zoning in 1990 looked toward developing a forest protection ordinance as one of the identified subtasks in developing the CFP. On April 17, 1990, Forest Conservation Bill 90-17 was introduced by a County Council member and subsequently withdrawn on June 5, 1990 due to a lack of support for the bill from other Council members and the public. Following the withdrawal of 90-17, a Tree and Forest Conservation Committee was formed to study forest protection issues within Harford County. Shortly after the November 1990 election, the Tree and Forest Conservation Committee was dissolved by the newly elected County Council.

Based on the work completed, the Department had intended to independently resume the development of a forest protection ordinance after the 90-17 setback. Early in 1991, the County Council contacted the Department and indicated that there was interest in developing a County forest protection ordinance. Meetings were subsequently conducted between the Department of Planning and Zoning, the Harford County Council and the Maryland Forest, Park and Wildlife Service. These first meetings were designed to discuss the essential components that should be included in a forest protection ordinance for Harford County. The Departmental staff, through the Administration, submitted a memorandum (Appendix A) to the Council which listed the basic components that the Department desired to be included in any proposed bill. The Maryland Forest, Park and Wildlife Service staff also supplied the County Council with a similar memorandum which discussed the bill components they desired. After several additional meetings, the details of the draft bill were worked out and Bill 91-31 (Appendix B) was introduced on May 14, 1991. The County Council voted unanimously on June 18, 1991 to approve the Harford County Forest Conservation Bill 91-31, with amendments, and the bill was signed into law by the County Executive on July 20, 1991.

The structure of Bill 91-31, throughout its development, was heavily influenced by the content of the State of Maryland Forest Conservation Law. It was the posture of the groups involved in developing the County Forest Conservation Bill to assume that the State Legislature would pass forest conservation legislation during 1991. Therefore, a potential County law would need to ultimately conform with the intent of the proposed State law. Even though the State law guided the development of the County law, there are some important differences between the two pieces of legislation.

#### B. State of Maryland Forest Conservation Law

The State of Maryland Forest Conservation Law uses a two-phase approach designed to conserve forest resources by first determining what resources are present on a parcel and then developing that parcel based on the resource assessment. There are also specific provisions within the law that direct when and where forest conservation, meaning afforestation and reforestation, shall occur. Among these provisions are preferred sequences for afforestation, reforestation and retention which afford the applicant a set of sequenced options, that can be applied depending on the layout of the development and the existing forestland. However, the reviewing agency must concur with the applicants intended forest conservation selection to receive plan approval.

#### C. Analysis of Legislation

Work on the proposed forest protection bill from the State Administration, which eventually became Senate Bill 224, had occurred prior to any serious discussion of a County forest protection bill in 1991. Initial discussions held with the Council about the proposed content of a County bill were guided by the structure of SB 224. This ultimately resulted in the State and County Forest Conservation Laws becoming very similar in their structure. The specific differences between the State and County Forest Conservation Laws have been summarized in this section (all sectional references refer to the Harford County Forest Conservation Law).

#### Sequence for Afforestation and Reforestation

The State law enlists a 'preferred' sequence of on and off-site options for afforestation and reforestation. To prevent applicants from continually selecting easier options, the County re-wrote section 267-30.8(A) as a required sequence. The Department felt that requiring this forest conservation sequence could be the most important portion of a potential County law. By qualifying this sequence with 'preferred,' most of the authority was removed from the reviewing agency to direct which sequence should be applied to a particular development situation. This move will afford the Department of Planning and Zoning final authority in determining which option would best fit the proposed development conditions.



In the development of the County law, the Maryland Forest, Park and Wildlife Service felt that a forest conservation option was needed to give credit for individual tree plantings within a development site. The Department worked with the Forest, Park and Wildlife Service to develop a section in the County law that addresses individual tree plantings. The Individual Tree Planting section 267-30.10 was amended to the law and an additional forest conservation priority, 267-30.8(A)(4), was added to the sequential list. The benefits of this new option are two-fold. First, for each individual tree planted, applicants are given credit for double the square footage of the mature canopy of the tree against any forest conservation requirements. Second, the individual tree plantings provide the Department with another priority to require on-site, rather than off-site, forest conservation. This will keep more forest conservation efforts on the development site to mitigate for the forest that has been removed.

#### Fee In-Lieu

The State Forest Conservation Law allows an applicant to pay for forest removed on a development site if forest conservation cannot be reasonably accomplished by the applicant either on or off-site. The fee in-lieu under the state law is 10 cents per square foot. From the standpoint of an applicant, the fee in-lieu is the easiest option for forest conservation. The County felt that a fee of 10 cents per square foot would encourage many applicants to attempt to prove a case for simply paying the fee in-lieu. Using the Harford County Critical Area Program as a precedent, the Department was able to amend the amount for the fee in-lieu, section 267-30.9, to 40 cents per square foot. The increase in the amount an applicant must pay for not planting trees will help limit the use of the fee in-lieu to developments where the forest conservation requirements can not be met due to unique site circumstances.

#### Threshold Percentages

The State law established minimum threshold percentages based on land use. A minimum threshold is the percentage of the tract area at which the forest conservation reforestation requirement increases from .25 acres replaced for every acre removed to 2 acres replaced for every acre removed. The County felt that it was important to keep these percentages at a level that did not allow for an excessive portion of the existing forest to be removed and then be replaced under the .25 acre forest conservation requirement. To avoid this problem the County developed higher threshold percentages (section 267-30.7(B)), than those used by the State. These threshold percentages are: 50% for Natural Resources Uses, 40% for Low Density and Medium Density Residential Uses, 30% for Institutional Uses, 30% for High Density Residential Uses, and 15% for Business and Industrial Uses.

## Forest Retention

Under the State law an applicant is not required to retain any existing forested areas in the FCP. The State law does provide a disincentive to clear-cutting forested areas by increasing the forest conservation requirements when an applicant intends to cut a large percentage of a site. Harford County felt that the retention of some existing forestland on-site was paramount in developing a forest conservation ordinance. This resulted in the development of section 267-30.6(A)(2) of the County law that requires the retention of a certain percentage of existing on-site forestland in developing the FCP. The retention percentages are based on land use and the acreage of forest on the parcel at the time of development. The retention percentages are: 50% for Natural Resources and Low Density Residential Uses, 40% for Medium Density Residential Uses, 30% for Institutional Uses, 30% for High Density Residential Uses, and 15% for Business and Industrial Uses.

## Abbreviated Plans

For proposed subdivisions of five or fewer lots, the County law allows an abbreviated Forest Conservation Plan (section 267-30.5(D)&(E)), to be submitted by an applicant. Given the rural character of Harford County, this section was included to address many of the smaller subdivisions that are submitted to the Department. The abbreviated plan will be subject to the same procedures and requirements as a full plan but with a less intensive level of detail.

## Timetables

Payment of fees in-lieu and the forest conservation requirements have set time limits that establish a window in which action must be taken by the applicant to satisfy the requirements of sections 267-30.9(B) and 267-30.5(B)(10), respectively. Under State Law, both of these time limits are to begin after the, "completion of the development project." The Department felt that this nebulous term would allow an applicant to delay paying fees or replacing forest until all phases of a development were complete. Under this scenario, fee in lieu payments or forest conservation requirements could be delayed for years. To avoid this situation, the County law starts the time window for fees in-lieu on the date that a grading permit or building permit is requested by the applicant. For forest conservation, a schedule must be developed by the applicant and accepted by the County under the FCP. This schedule must reflect any sectional or phased development.

## Penalties

Violation of the provisions of the State Forest Conservation Law penalizes an applicant 30 cents per square foot for the area found to be in non-compliance. The County again felt that such a small fine would not act as a sufficient incentive for an applicant to obey the provisions of the County Law. To improve this situation, the Chesapeake Bay Critical Area regulations were used as a precedent by the County Administration to amend section 267-30.15(B) of the law to raise the fee to \$1.20 per square foot. The County may also bring civil action against an applicant.

## Bonding

Section 267-30.12 requires that a surety (bond, letter of credit or other security) be provided to the County in an amount equal to the estimated cost of forest conservation or individual tree planting according to the approved FCP. Upon one successful growing season, two-thirds of the surety will be released. After two successful growing seasons the remainder will be released. The surety will only be released at these intervals if the forest conservation or individual tree plantings meet or exceed standards established by the Maryland Forest, Park and Wildlife Services', Forest Cover Conservation and Replacement Manual.

By increasing penalties and including the requirement of a surety, applicants will be encouraged to police themselves regarding the County Forest Conservation Law. Hopefully, this will reduce the Departments' role in determining compliance with the law in the field.

## D. Action Plan Appraisal

The State of Maryland Forest Conservation Law was developed as a framework of minimum standards which the jurisdictions within Maryland can use to tailor a forest conservation law to their own specific needs. Harford County has used the State law as a guide in developing specific forest protection requirements as well as an overall guidepost. The County Forest Conservation Law has filled many of the tree and forest protection gaps that existed in the County regulations. This section represents a specific appraisal of how these gaps have been filled by the Forest Conservation Law and how the goals of the CFP have been achieved.

## 1. Regulatory Improvements

### Chesapeake Bay Critical Area Overlay District:

The County Forest Conservation Law applies to all unincorporated areas outside the Harford County Chesapeake Bay Critical Area Overlay District. The County Forest Conservation Legislation effectively extends the protection and benefits that trees and forests are currently provided within the Overlay District into the upper regions of the watersheds within Harford County.

#### Specific Issues:

- \* As with the Overlay District, the new Forest Conservation Law will specifically protect trees and forested areas. The County Forest Conservation Law will only improve that protection by increasing the areal extent of forest protection legislation to encompass all of Harford County.

### Natural Resource Overlay District:

The County law will improve the environmental function of the Natural Resource District by widening the undisturbed 75' buffer which is required to shield sensitive natural features from development activities.

#### Specific Issues:

- \* Section 267-30.6(C) provides a list of specific, priority forest retention areas. These retention areas are to be maintained in an undisturbed condition and protected through restrictive covenants. The specific priority areas include many of the natural features that are associated with the Natural Resource District.
- \* Section 267-30.8(C) identifies areas that are priorities for the reestablishment of forested areas. This section specifically mentions forest reestablishment within any areas of identified Natural Resource District that are currently unforested.

#### Subdivision Regulations:

The County Forest Conservation Law provides a level of protection for trees and forested areas that is not currently available within these regulations.

#### Specific Issues:

- \* The Subdivision Regulations will be amended to reflect the changes needed in the subdivision approval process to incorporate the necessary forest protection requirements.

#### Forest Harvest Permit:

Any activity conducted under a Forest Harvest Permit is exempt from the provisions of the County Forest Conservation Law. However, the County law does influence the use of these permits.

#### Specific Issues:

- \* Section 267-30.2(C)(1)&(2) reduces the impact of the existing loophole whereby a Forest Harvest Permit is used as a legal means of removing forest prior to parcel development. If a harvest is conducted under a Forest Harvest Permit and a development proposal for that parcel is received within 5 years of the harvesting, the trees that were existing on the parcel prior to the harvest must be considered when determining forest conservation requirements in the FCP. If a development proposal is received after 5 years of the harvesting then the forest that is existing on the parcel must be considered in the FSD and FCP.

#### Floodplain Management Program:

The County Forest Conservation Law improves the function of the Floodplain Management Program by establishing priority areas that in many instances encourage a buffer adjacent to the floodplain. This will help to keep development away from floodprone areas.

#### Specific Issues:

- \* Section 267-30.8(C) identifies areas that are priorities for the reestablishment of forest. The majority of these priorities deal with the widening of buffers around many of the natural features that would normally be associated with floodplain areas (i.e. perennial and intermittent streams, steep slopes, Natural Resource District areas).

- \* Section 267-30.6(C) provides a list of specific priority forest retention areas that are to be maintained in an undisturbed condition. This section specifically mentions the floodplain district, established under the County Code, as one of these priority areas.

## 2. CFP Goals

The completion of the Forest Conservation action plan has fulfilled the objective of Subtask 1 and achieved the identified Goals A and B of the Comprehensive Forestry Program.

Goal A. Prevent the excessive loss of forestland.

### Specific Issues:

- \* Section 267-30.7 regulates the minimum threshold percentages for forest replacement and works as a disincentive for an applicant to remove forest acreage below the minimum threshold percentage for that parcel.
- \* Section 267-30.6(A)(2) requires that a minimum percentage of the original acreage of forest on a parcel be retained as undisturbed forestland.

Goal B. Mitigate "necessary" forest loss during the development process.

### Specific Issues:

- \* Section 267-30.7 assures that forestland will be replaced either at a ratio of .25 acres or 2 acres for every acre of forestland removed by an applicant.
- \* Section 267-30.8(A) gives the Department options (i.e. on-site afforestation/reforestation, off-site afforestation/ reforestation, landscaping, etc.) when evaluating a development proposal as to the type and location of forest conservation that will be required of an applicant.
- \* Section 267-30.8(C) lists the priority areas for forest conservation. Many of these priority areas encourage forest conservation activities where enhancement of important existing natural features would occur or where buffers would be created where none currently exist.

#### **E. Forest Conservation Ordinance Implementation**

Since the Harford County Forest Conservation Ordinance has become law, the Department has been working to develop the various guidelines and procedures necessary to implement the ordinance. The first step toward this end has been the development of draft Interim Forest Stand Delineation Guidelines. These guidelines outline the methodology and procedures for delineating the existing forest and natural feature data on a proposed development site and submittal of this information to the Department. In developing these guidelines the Department employed the State of Maryland Department of Natural Resources (DNR) draft Forest Conservation Manual as a reference to provide uniformity between the two programs.

The guidelines were developed on an interim basis to allow for editing when DNR reviews the Harford County program in 1992. The Department is currently making final edits to the draft Interim FSD Guidelines. A copy of the draft Interim FSD Guidelines is provided in Appendix C.

The Department has also begun the development of several other key elements of the program including: the guidelines for the Forest Conservation Plan, the policies for forest retention, forest conservation and forest reestablishment, the Abbreviated FCP guidelines and tree protection and mitigation guidelines.

### **III. GRANT EXTENSION FOR SUBTASK 2**

#### **A. Introduction**

Fiscal year 1991 represented the second year of funding and the final implementation phase for the Harford County Comprehensive Forestry Program. In FY90 the County received CZM grant funding in order to examine the adequacy of existing environmental regulations with emphasis on interagency coordination, program overlap and suggested remediation. Forested areas were identified in the FY90 final report as a resource requiring greater protection. The focus of the FY91 grant was to implement the a protection strategy for County forestry resources.

#### **B. Background**

A portion of the Harford County FY91 CZM grant for the Comprehensive Forestry Program Implementation was based on the availability of the County Geographic Information System (GIS) to complete this project. Specifically, the work approach of Subtask 2 was restructured to include the use of the GIS to determine areas of 50 acres or greater of contiguous

forest within the County. From this information, the GIS was to then be used to identify landowners with 50 contiguous acres of forestland on their property and landowners whose parcels were part of a 50 acre or greater contiguous area of forestland. The property owners would then be contacted to advise them of the options available for non-regulatory forest protection.

The move to incorporate the GIS into this project was made based on several presumptions:

1. The GIS system would more accurately and promptly provide the desired output versus a manual review of aerial photography.
2. The date for final implementation of the GIS was scheduled for August 31, 1991.

Based on these two presumptions, the Department of Planning and Zoning (the Department) felt that this type of project would lend itself as a worthwhile GIS application. The Department also felt that manpower could be reduced and accuracy increased by utilizing the GIS in two key areas of the project.

First, the GIS would be able to quickly identify and compute acreage of the forested areas. The identified forested areas could then be transferred into a map form at any scale. Second, upon full implementation, the GIS would be able to overlay the selected forested areas against the cadastral (tax map) layer and determine which parcels lie within the selected forested areas. The GIS would then provide a printed report of the name and address of each property owner from the Maryland Assessments and Taxation TRIS database.

Conversely, utilizing a manual approach to complete this Subtask would involve the analysis of over 611 aerial photographs of the County. Forested areas would have to be planimeted for acreage and then transferred to a small scale map of the County using a copy machine to reduce the shape of the selected forested areas until their scale was approximately that of the County map. Then, either the existing 1" = 600' County tax maps would have to be enlarged to 1" = 200' or the 1" = 200' aerial photographs would have to be reduced to 1" = 600' to match the tax maps. Once both sets of maps were at the same scale they would have to be overlain and the parcel numbers would have to be copied. Finally, the parcel numbers would have to be entered into the TRIS database and the name and address of each property owner copied.

As the date for final implementation of the GIS approached, it became obvious that Landmark GIS, the consultant developing the digital map database layers for the system, would not be able to meet the implementation schedule. As of February 26, 1992, the forested boundaries, an attribute of the plantopo layer of the database, was not in a form that could be utilized for this project. Landmark GIS had not performed thorough quality control on the all



of the map sheets before releasing the data to the County. The boundaries of individual trees and forested areas had not all been verified as polygonal (area) features on every map sheet; as of the date of this report, the forest boundary layer has not been 100% corrected.

Additionally, a software limitation of the GIS, which the GIS Division and the Department were not aware of, has made a single analysis of the forested areas within the County impossible. After experiencing significant problems trying to select forested areas 50 acres or greater, the GIS Coordinator contacted GENASYS and was informed that GENAMAP is not be able to read the acreage of forested areas which cross the rectangular boundaries of the County tax maps. GENASYS attempted to solve this GENAMAP limitation by developing a program which runs in UNIX, the operating environment for GENAMAP, in order to select forested areas greater than 50 acres. However, the existing errors in the forest boundary layer have prevented the UNIX program from successfully selecting all forested areas over 50 acres. As an alternative, the Department has begun to review the forested areas on a single tax map basis utilizing a command which allows the operator to manually select the forested areas which cross a tax map boundary. Using this approach, forested areas greater than 50 acres have been selected for Harford County. A copy of the map showing these features has been included with this report. The forest data has not yet been overlaid with the cadastral maps on a County-wide basis. However, a test of this procedure has been completed for tax map 24. A 20" x 30" plot of the cartographic output from the overlay process described earlier has also been provided with this report. The areas shaded in green represent forested areas greater than 50 acres. Forested areas less than 50 acres were removed by the GIS. Additionally, a copy of the report generated by the GIS listing the tax identification numbers for all of the parcels that either contain 50 acre or more of contiguous forestland or are part of a 50 acre contiguous forest has been provided in Appendix D. A corresponding list of the names and addresses of the property owners identified on tax map 24 has been included in Appendix E.

### C. Alternative Implementation of Subtask 2

When the forest boundary attribute data is corrected by Landmark GIS and resubmitted to the County, the Department is anticipating completing the work tasks defined under Subtask Two as planned under the CZM FY91 contract. The Department believes that options must be presented to landowners who do not wish to develop their land but want to protect their forest resources given the heightened awareness toward protecting forest resources on land being developed which was brought about by the adoption of the Harford County Forest Conservation Ordinance.

The intent of Subtask Two was to inform landowners within the County who own all or part of a large forested area that there are non-regulatory protection options available, public and private, that will afford protection of forest resources without a total loss of use of their land or a reduction in its market value. The Department has drafted a form letter to be mailed to the

selected landowners. A copy of this letter is included in Appendix F. The purpose of this letter is not inform landowners of all their non-regulatory forest protection options, but to encourage them to contact the Department if they would like more information.

The approach toward non-regulatory programs that the Department is interested in pursuing is based on landowner response to the letter advising them of their options. The Department would rather not take the standard planning approach of zoning targeted areas of the County for the implementation of specific non-regulatory forest protection measures based on general environmental features (i.e., proximity to a waterbody, presence of soils indicative of steep slopes, etc.). This approach attempts to fit each landowner to specific forest protection measures and in many cases, has intimidated the landowner due to the degree of formal structure. The Department is involved with many programs at the County level and will work to fit the landowner with the method and degree of forest protection they are comfortable with. The Department is also able to put a landowner in touch with a State agency responsible for administration of one of the non-regulatory programs outlined in Appendix G.

In developing this Subtask, the Department examined a range of widely used non-regulatory protection options from other jurisdictions that could be applied to forest protection in Harford County. The options reviewed include: local land trusts, transfer of development rights, conservation easements, deed covenants and restrictions and purchase of development rights. The Department felt that the local land trust, transfer of development rights and purchase of development rights were the most viable options to the County because they could be integrated into programs the Department was currently developing. The Department felt that deed covenants and restrictions were a private matter and conservation easements could be handled through a local land trust rather than pursue this option as a separate program.

One option is being explored and two have been integrated into the development of two County programs which will encourage forest protection through non-regulatory means. These programs are the Harford County Rural Plan and the Environmental Land Preservation Committee.

As part of the Rural Plan effort, and element of the Harford County 1988 Master Plan, the Department has been investigating the expanded use of Transfer of Development Rights (TDR) and Purchase of Development Rights (PDR) as a means of protecting rural areas. It is anticipated that upon implementation of these measures, targeted landowners with large forested tracts would be approached regarding their interest in the sale or transfer of development rights. The Department is also investigating the use of regulatory incentives to promote clustering and thereby protecting forestland in the rural area. Selected excerpts from the draft plan are included in Appendix H.

As an outgrowth of the Department's work with the Environmental Land Preservation Committee, the Committee has been examining the use of a variety of incentives and non-regulatory approaches to rural land conservation. The Committee is working with the Department to evaluate what options may work best for Harford County. A copy of the legislation establishing the Environmental Land Preservation Committee is provided in Appendix I. The Department has also investigated the use of conservation easements and is developing a cooperative approach with a recently formed local land trust (Harford Land Trust). Again, this would entail the use of a targeted approach to specific landowners, advising them of the availability of conservation easements that might be used to meet their land protection objectives.

#### **D. Conclusion**

The Department will continue to perform the forest analysis outlined in Subtask 2 of the Comprehensive Forestry Program Implementation even though the grant period for Fiscal Year 1991 has ended. It is the intention of the Department to deliver the final work product, as promised, to the Maryland Department of Natural Resources when complete.

### **IV. COUNTY TREE PLANTING PROGRAM**

#### **A. Program Development**

In accomplishing the objective of Subtask 3, the Department had initially approached the task of developing a tree planting program as separate, but integrated with existing County regulations. The goal of this initial approach was to develop a program which would provide trees to interested groups or individuals who would plant the trees within strategic (i.e. stream valleys, floodplain areas, steep slopes, etc.) areas of the County. To determine what programs are available, the Department reviewed the forestry related programs administered by the Federal, State and County Governments and programs available from the private sector.

Discussions within the Department centered around funding this program with in-lieu fees under the provisions of the County's Chesapeake Bay Critical Area Overlay District. Under this approach the Department anticipated that additional funds could be obtained for this program if the County developed a Forest Conservation Law with provisions similar to those in the Critical Area Overlay District. However, development of the State Forest Conservation Law forced the Department to review its original approach to a tree planting program. This review was necessary due to the responsibilities that had been assigned to the local governments with regard to violations, fees in-lieu and tree planting.

The Department finally assessed that its responsibilities under the County Forest Conservation Law were parallel with its initial approach toward a County tree planting program and would achieve the objective of Subtask 3.

## B. Existing Tree Planting Programs

The Federal, State, and private tree planting programs that were reviewed by the Department have been summarized in Appendix E. The Maryland Forest Park and Wildlife Service developed this program synthesis to explain in layman terms the goals of these forestry-related programs.

Most of the programs listed in Appendix E benefit private landowners who wish to manage their forestland. However, two of the State programs (Greenshores and Tree-Mendous Maryland) are designed to provide trees to interested groups for planting in sensitive areas.

In addition to these State programs, there are several County Departments involved in tree planting programs. The Department of Public Works developed and administers a program that encourages used Christmas trees to be recycled rather than buried in the County landfill. Individuals may bring their used Christmas trees to a designated location to be mulched. The mulch is then used in landscaping County owned land. In return, a coupon for a white pine seedling is given to each person who recycles their Christmas tree. This coupon is redeemable the following spring for the white pine seedling.

Also, the Department of Public Works has rented and operated a tree spade for the past 3 years. While there is not a specific program that directs the use of the tree spade, it is used on an "as needed" basis for the removal of trees donated to the County by private property owners and for moving trees on County owned land. The Department of Public Works has used the tree spade to move 119 trees.

Since 1990, the Department of Parks and Recreation has administered Harford County's Chesapeake Bay Urban Forestry Grant. Monies from this grant are currently being used to landscape parkland owned by the Department of Parks and Recreation within the Critical Area.

Finally, the Department of Natural Resources announced this year that a grant for tree planting was being made available to State agencies and local governments. This grant is funded by the U.S. Small Business Administration and is designed to stimulate tree planting in environmentally sensitive areas or unforested open space areas. Harford County has submitted a grant application to the Department of Natural resources for this grant.

### Overlap

Coordination will be needed between the two identified State programs and the County Forest Conservation Law. Directed by Maryland Forest, Park and Wildlife Service, the Green Shores Program and the Tree-Mendous Maryland Program both advocate tree plantings in sensitive areas by local governments, schools, corporations, community

groups, and service organizations. With Harford County now involved in planting trees and creating forested areas, coordination with the Forest, Park and Wildlife Service will be required to ensure that plantings as a result of the State and County programs maximize staff resources and environmental benefits.

As for the County Departments with tree planting programs, interdepartmental coordination will be needed to ensure similar results. Coordination between Departments will be one of the most important components in implementing the County Forest Conservation Law to guarantee that each Department is working toward a common goal. To date, the Department has held formal meetings with the Department of Public Works to begin discussing the steps that need to be taken to provide a system for the coordination of plan review. The Director of the Department has met with the County Executive to discuss new staffing requirements which are necessary to implement the Forest Conservation Law and help in the review of FSD's and FCP's. Also, foresters from the Maryland Forest, Park and Wildlife Service have been attending internal meetings with Departmental staff who are working on implementation procedures for the Law. Developments from these and any further meetings will be integrated into Departmental policies that will implement the provisions of the County Forest Conservation Law.

### C. Action Plan Appraisal

The tree planting ordinances the Department obtained from other jurisdictions are predominantly dedicated to the proper implementation of urban forestry practices (i.e. spacing for planting, root protection, pruning, etc.). Under the County Forest Conservation Law, a supplemental technical manual will be developed by the Department to provide for the local implementation of these same urban forestry practices. What this means is that the County manual will be similar in content to the tree planting programs reviewed by the Department. Therefore, the development of a separate tree planting ordinance would be redundant to the provisions of the County Law. Appendix F contains a list of the tree planting ordinances that were reviewed by the Department.

The Harford County Forest Conservation Law will provide an integrated approach to funding and tree planting which fulfills the objective of Subtask 3 and achieves Goal C, of the Comprehensive Forestry Program.

#### Specific Issues:

- \* Section 267-30.9 addresses procedures for the payment of a fee in-lieu by an applicant. Subsection E of this section specifically outlines how money paid into the Forest Conservation Account is to be utilized. Under this section, any funds collected, "may only be used by the Department for reforestation, afforestation, including site identification, acquisition and preparation."

- \* Section 267-30.15. The penalty of \$1.20 per square foot will be assessed based on the area that is considered by the Department to be in violation of the Law. Money recovered by the Department for such a violation is to be paid into the Forest Conservation Account for use by the Department in further implementing the provisions of the County Law.

#### D. Forest Conservation Ordinance Implementation

The thrust of the County ordinance is to retain and reforest on-site. Through the development of the guidelines and procedures necessary for the implementation of the ordinance, the Department has worked to incorporate the benefits a separate tree planting program would extend to the landscape of Harford County.

The draft policies for forest conservation and forest reestablishment directly addresses the forest conservation which will be required on most development sites. Replacement will occur either through afforestation, reforestation or individual tree planting. The draft policies state with regard to the Harford County Forest Conservation Ordinance Section 267-30.8.A:

"The thrust of this ordinance is to retain and reforest on-site. Evidence of this can be noticed throughout the legislation. Therefore, if forest clearing is conducted, on-site reforestation is the most desired method by which one could meet the requirements. The sequence for forest conservation is a list of nine different methods. The nine items in the sequence are in order of priority, with 1 being the most desirable and 9 being the least desirable. Numbers 1 through 5 of this paragraph are for on-site activities, and the Department should make an earnest attempt to push for these five methods to be the ones used in meeting forest conservation requirements."

#### V. CONCLUSION

The intent of the Harford County Forest Conservation Ordinance and the draft Department's forest conservation and forest reestablishment policies is to advocate forest retention to the greatest extent possible during the development design process and to then replace any deforested or non-sensitive open areas on-site with trees and forestland. Once these options have been exhausted, the characteristics of the specific site and the applicants intentions toward that site will dictate how the balance of the forest conservation requirements are met.

Tree planting will become an integral part of the development process given the framework of the ordinance, the policy structure the Department is developing to implement the ordinance and the planting and funding mechanism described under C of this section. The ordinance will drive development design to be based on the suitability of the site, through the relation of natural features to biological diversity, rather than development design strictly based on engineering standards of buildable versus unbuildable land.

## Appendix A



HARFORD COUNTY GOVERNMENT  
DEPARTMENT OF PLANNING AND ZONING

MEMORANDUM

TO: The Honorable Theresa M. Pierno, County Council  
The Honorable Susan B. Heselton, County Council

FROM: William G. Carroll, Director *WGC*

THROUGH: Eileen M. Rehrmann, County Executive

DATE: February 7, 1991

RE: Draft Outline for the Tree Conservation Bill

This memorandum is to serve as an outline for the Tree Conservation Bill. As we discussed in our meeting of 1-4-91, members of my staff, Jim Vannoy, and yourselves will work together on this Bill. The following outline is a starting point from which to further develop our collective thoughts on the Bill. The basic components of what the Administration desires to be included in the Bill are as follows.

I) Location of the Bill within the County Code

Decisions will have to be made on where to place the Bill within the County Code. Likely locations include the following chapters: zoning, subdivision regulations, and sediment control and stormwater management.

II) Basic Approach of Tree Conservation

A tree conservation program can encompass a variety of components. Some of these components may include: a county tree planting program; citizen involvement; inter-governmental coordination; and, as is the subject here, tree conservation legislation.

Regulations which deal with the protection and planting of trees can basically take two different forms: ones which concentrate more on buffering and landscaping; and ones which focus more on forests and wildlife as resources. It is our intention to center more on the latter; however, we plan to incorporate some landscaping/buffering provisions. Ideally, it may be more desirable to address forest conservation in one bill and landscaping/buffering in another; nevertheless, it seems more realistic to include some landscaping/buffering provisions in this bill.



The State Administration has recently introduced a forest conservation bill (Senate Bill 224, with a companion House of Delegates Bill). This legislation appears to have many of the same components which we believe should be included in any local legislation. In general, the State Bill would require that local governments develop their own programs; otherwise the state would implement the regulations. Presuming passage of the State Bill, it will be necessary for the County to carefully consider the provisions of the State Bill in the development of the County Bill.

### III) Draft Outline of the Components of the Bill

#### A) What will be protected?

As a starting point in the drafting of the County Bill, we believe the following issues should be addressed.

- 1) Trees should be protected by requiring a certain percentage (ranging from 50% to 10%) of forest cover retention for each of the zoning districts. Agricultural zoning districts will have the highest retention percentage, and industrial districts will have the lowest. An afforestation provision may be included.
- 2) Any clearing of trees should be replaced on an equal square footage basis or up to a pre-determined percentage based on zoning districts. Replacement of trees should be done in the following order of preference: on site; off site; and payment of fee-in-lieu of planting. Bonding or a letter of credit should be required for trees which are delineated for preservation.
- 3) Different types of trees should receive different levels of protection. For example, rare and otherwise preferred trees (according to size and/or species) should be specifically identified on the Forest Conservation Plan (see below). These trees should be protected in the development process as much as possible. A list of special trees will be developed. Some of the different categories of special trees may include: rare and endangered trees; state champion trees; near state champion trees; trees of historical importance; trees of County importance; etc. Contiguous tracts of trees (plant and wildlife corridors) should be delineated and specifically protected as well.
- 4) Trees, or groups of trees, which are to be

protected should have some sort of barrier (i.e., snow fence) around their outer edge to prevent damage during the construction process.

- 5) The Forest Conservation Plan (see below) will describe the forested areas and how they will be protected according to the provisions of the legislation.

B) What is the Forest Conservation Plan?

- 1) The Forest Conservation Plan will spell out: what the existing conditions of the development site are; what will be cleared on the site; and how the provisions of the Bill are going to be met (i.e., retention, replanting, afforestation, etc).
- 2) This plan should be developed by a registered professional forester or registered landscape architect. If the development involves less than the creation of five lots, a simpler version of a Plan may be developed by the landowner according to specific guidelines.
- 3) This plan should be approved before the issuance of a building permit, grading permit, or preliminary plan approval, whichever comes first.

C) What Activities will the Bill apply to?

- 1) The Bill would apply to all development activities which will result in the clearing of more than 5,000 square feet (the same as a Forest Harvest Permit). Afforestation would be required where a development site had less than the minimum amount of trees required in the retention provision of the Bill.

D) How will the Public be involved in the drafting of the Bill?

- 1) Public review and input is crucial to the successful development and implementation of this type of legislation. This may occur at civic and professional organization meetings, workshops, etc. It is important to have opportunities for explanation of the Bill and for public comments in a workshop setting before public hearings are held.
- 2) Public information materials should be developed to accompany the drafts of the Bill. Such materials may include the following:

- a) Videos and slide presentations which explain the need for the Bill, how it would work, and show where trees in the County have been retained on site and where they have been mass graded;
- b) Speaking on radio talk shows, and possibly local television stations (e.g., Channel 2, Project Environment); and
- c) Brochures and press releases which explain the need for such a Bill and how it would work.

This outline is purposely general in order to give us a place to start. Please contact Andy Meyer at extension 103 to arrange a meeting to begin work on the Bill.

WGC/REH/jw

copies: Wayne Merkel, Maryland Forest, Park, and Wildlife Service  
Jim Vannoy, Esq., Legislative Draftsman

## Appendix B

**BILL 91-31, AS AMENDED**

**PART 1. STANDARDS.**

**Article 1. General Provisions.**

**§267-4. Definitions.**

For purposes of this Part 1, the following words and phrases shall have the meanings provided below:

**CLEAR AND CLEARING** - Cutting or removing trees, ground cover, stumps, and roots, including the movement of topsoil prior to grading.

**CUT** - Removing trees without removing stumps and roots.

**CALIPER** - The diameter of a tree measured:

A. At 6 inches above grade for trees with a caliper of 4 inches or less; and

B. At 12 inches above grade for trees with a caliper of more than 4 inches.

**CHAMPION TREE** - The largest tree of its species in the United States, Maryland, or Harford County, as appropriate.

**DEPARTMENT** - The Department of Planning and Zoning.

**DEVELOPMENT** - The construction, reconstruction, conversion, erection, alteration, relocation, or enlargement of any building or structure; any mining, excavation or landfill; and any land disturbance in preparation for any of the above.

**DIAMETER AT BREAST HEIGHT (DBH)** - The diameter of a tree measured at 4 1/2 feet above grade.

**DRIPLINE** - An imaginary vertical line that extends down from the outermost branches of a tree to the ground.

**INTERMITTENT STREAM** - A stream:

A. In which surface water is absent during a portion of the year;

B. That is shown on the most recent 7.5 minute topographic quadrangle published by the United States Geologic Survey; and

C. That has been confirmed to be an intermittent stream through field verification.

**NATURAL REGENERATION** - The natural establishment of trees and other vegetation of a density of at least 400 woody, free-to-grow seedlings per acre which are capable of growing to a height of at least 20 feet at maturity.

**NET TRACT AREA** -

A. In the AG zoning district, the portion of the parcel for which land use will be changed or that will no longer be used primarily for agriculture, reduced by any unforested area within the floodplain district established under Chapter 131 of this Code.

B. In all other districts, the total area of the parcel, to the nearest one-tenth acre, reduced by any unforested area within the floodplain district established under Chapter 131 of this Code.

**PERENNIAL STREAM** - A stream:

A. Containing surface water throughout a year of average rainfall;

B. That is shown on the most recent 7.5 minute topographic quadrangle published by the United States Geologic Survey; and

C. That has been confirmed to be a perennial stream through field verification.

**PUBLIC UTILITY** - A gas and electric company regulated by the Maryland Public Service Commission, a cable television company operating under a franchise granted by the County Council, or a telecommunications company.

**SEEDLING** - An unbranched woody plant of less than 24 inches in height and less than 1/2 inch in diameter at a point 2 inches above the root collar.

**SELECTIVE CLEARING** - The planned removal of trees, shrubs, and plants using specific standards and protection measures under an approved forest conservation plan.

**TREE** - A large, woody plant with at least 1 self-supporting trunk and numerous branches capable of growing to a height of at least 20 feet at maturity.

**URBAN FORESTRY** - A specialized branch of forestry concerned with the management, protection, and conservation of forest, trees, and other woody vegetation in urban and semi-urban areas.

**USE, BUSINESS** - Any use listed on Table 1, Principal Permitted Uses, under the categories of amusements, motor vehicle and related services, retail trade, services or transportation, communications and utilities (TCU).

**USE, INDUSTRIAL** - Any use listed on Table I, Principal Permitted Uses, under the categories of industrial uses or warehousing, wholesaling and processing.

**USE, INSTITUTIONAL** - Any use listed on Table 1, Principal Permitted Uses, under the category of institutional uses.

**WHIP** - An unbranched woody plant with a height of 24 inches or more and a diameter of less than 1 inch at a point 2 inches above the root collar.

## **Article V. A. Forest and Tree Conservation.**

### **§267-30.1. DEFINITIONS.**

**A.** In this article the following terms have the meanings indicated.

**B.** "Afforestation" means the creation, in an area that is not presently in forest cover, of a biological community dominated by trees and other woody plants at a density of at least 100 trees per acre with at least 50% of the trees having the capability of growing to a DBH of 2 inches or more within 7 years.

**C.** "Critical Habitat Area" means a habitat that:

(1) Is occupied by an endangered species, as determined or listed under the Natural Resources Article, §§4-2A-04 or 10-2A-04 of the Annotated Code of Maryland;

(2) Is likely to contribute to the long-term survival of the species;

(3) Is likely to be occupied by the species for the foreseeable future; and

(4) Constitutes habitat deemed critical under the Natural Resources Article, §10-2A-06 of the Annotated Code of Maryland.

**D.** (1) "Forest" means a biological community dominated by trees and other woody plants covering a land area of 10,000 or more square feet.

(2) "Forest" includes:

(a) An area having at least 100

trees per acre, if at least 50% of the trees have a DBH of 2 inches or more; and

(b) Forest that has been cut but not cleared.

(3) "Forest" does not include orchards.

E. "Forest cover" means the area of a parcel meeting the definition of forest.

F. "Forest conservation" means the retention of existing forest or the creation of new forest.

G. "High density residential use" means land zoned for densities of more than 1 dwelling unit per acre, including both existing and planned development and their associated infrastructure, such as roads, utilities, and water and sewer service.

H. "Low density residential use" means undeveloped land zoned for densities of less than or equal to 1 dwelling unit per 5 acres.

I. "Medium density residential use" means land zoned for a density of more than 1 dwelling unit per 5 acres, and less than or equal to 1 dwelling unit per acre, including both existing and planned development and their associated infrastructure, such as roads, utilities, and water and sewer service.

J. "Reforestation" means the creation of a biological community dominated by trees and other woody plants at a density of at least 100 trees per acre with at least 50% of the trees having the capability of growing to a DBH of 2 inches or more within 7 years.

#### **§267-30.2. Applicability.**

A. Except as provided in Subsection B of this section, this article applies to any person, including the County, who applies after January 1, 1992, for subdivision approval, a

grading permit, or a building permit for an area of land of 40,000 square feet or more.

B. This article does not apply to:

(1) Cutting or clearing conducted in accordance with a forest harvest permit issued under Chapter 214 of this Code, if the cutting or clearing:

(a) is completed before July 1, 1991; or

(b) is completed on or after July 1, 1991, and the property on which the cutting or clearing is conducted is not the subject of an application for a grading permit within 5 years after the cutting or clearing;

(2) Cutting or clearing in the Chesapeake Bay Critical Area Overlay District established under §267-41.1 of this chapter;

(3) Cutting or clearing to further agriculture, if the land on which the cutting or clearing is conducted is not the site of development within 5 years after the clearing or cutting;

(4) Forest management activities conducted in accordance with a Federal, State, or local forestry or woodland incentives program;

(5) If conducted so as to minimize the loss of forest, cutting or clearing of:

(a) public utility rights-of-way; and

(b) land for an electrical generating station approved by the Public Service Commission under Article 78, §§54A, 54B, or 54I of the Annotated Code of Maryland;

(6) Routine maintenance of public utility rights-of-way;

(7) Any development conducted on a single lot of any size, if the development:

(a) does not result in the cutting, clearing, or grading of more than 40,000 square feet of forest; and

(b) does not result in the cutting, clearing, or grading of any forest that is subject to a previous forest conservation plan prepared under this article;

(8) Any activity required for the purpose of constructing a dwelling for the use of the landowner, a child of the landowner, or a grandchild of the landowner, if the activity does not result in the cutting, clearing, or grading of more than 40,000 square feet of forest; and

(9) Any strip or deep mining of coal regulated under the Natural Resources Article, Title 7 of the Annotated Code of Maryland, and any noncoal surface mining regulated under the Natural Resources Article, Title 7 of the Annotated Code of Maryland.

C. If land on which cutting or clearing has been conducted in accordance with an exemption under Subsections B(1)(b) or B(3) of this section is developed:

(1) Within 5 years after the cutting or clearing, the development is subject to this article and the required forest conservation shall be calculated based on the acreage of forest that existed before the cutting or clearing; and

(2) More than 5 years after the cutting or clearing, the development is subject to this article and the required forest conservation shall be calculated based on the acreage of forest that exists after the cutting or clearing.

### **§267-30.3. General Requirements.**

A. A person who applies after January 1, 1992, for subdivision approval, a grading permit, or a building permit for an area of land of 40,000 square feet or more:

(1) Shall submit to the Department:

(a) a forest stand delineation for the lot or parcel on which the development is located; and

(b) a forest conservation plan for the lot or parcel on which the development is located;

(2) Shall not, unless granted an exemption by the Department, perform any construction activity in the dripline of a tree that is to be retained; and

(3) Shall use methods approved by the Department to protect retained trees during construction.

B. Notwithstanding any other provision of this article, the Department of Public Works shall plant at least one tree for every two trees of a DBH of 8 inches or more that it cuts or clears as part of a project to widen a County road.

C. When planting trees in accordance with Subsection B of this section, the Department of Public Works shall meet the following criteria:

(1) The trees planted shall:

(a) have at maturity approximately the same area of canopy as the trees that were cut or cleared; and

(b) have a caliper of at least 1 1/2 inches;



(2) The trees shall be planted:

(a) if feasible, on the site or in the right-of-way used for the project; or

(b) if the owner of the abutting property requests, on property that abuts the site or the right-of-way used for the project;

(3) The trees shall be of the same species as those cut or cleared if:

(a) the owner of the abutting property so requests; and

(b) they are planted on abutting property;

(4) If the owner of the abutting property requests, the Department of Public Works shall pay the owner a fee in an amount equal to the cost of the trees that would have been planted on the abutting property under this section, and payment of the fee relieves the Department of Public Works of the duty to plant the trees.

#### **§267-30.4. Forest Stand Delineation.**

**A.** A forest stand delineation shall be submitted before a preliminary subdivision plan, a grading permit application, or a building permit application is submitted for the lot or parcel being developed.

**B.** The delineation shall be prepared by a licensed forester, licensed landscape architect, or other professional approved by the Department.

**C.** The delineation shall include:

(1) a topographic map delineating intermittent and perennial streams, and steep slopes over 25%;

(2) a soils map delineating soils with

structural limitations, hydric soils, and soils with a soil K value greater than 0.35 on slopes of 15% or more;

(3) Forest stand maps indicating species, location, and size of trees, and showing dominant and codominant forest types; and

(4) any other information required by the Department.

**D. (1)** Within 30 calendar days after receipt of the forest stand delineation, the Department shall notify the applicant whether the forest stand delineation is complete and correct.

(2) If the Department fails to notify the applicant within 30 calendar days the delineation shall be treated as complete and correct.

(3) The Department may require further information or extend the deadline for an additional 15 calendar days under extenuating circumstances.

#### **§267-30.5. Forest Conservation Plan.**

**A.** A Forest Conservation Plan shall be prepared by a licensed forester, a licensed landscape architect, or other professional approved by the Department.

**B.** A Forest Conservation Plan shall:

(1) Be submitted with the first of the following submitted for the site:

(a) a preliminary subdivision plan;

(b) an application for a grading permit; or

(c) an application for a building permit.

(2) Include a map of the site drawn at the same scale as the grading or subdivision plan;

(3) Include a table that lists, in square feet,

(a) the net tract area;

(b) the total area of forest conservation required; and

(c) the total area of forest conservation that the applicant proposes to provide, including both on-site and off-site areas;

(4) Include a clear graphic indication of the forest conservation provided on the site, showing areas where retention of existing forest or afforestation is planned;

(5) Include a construction timetable indicating the phasing of the project and showing the sequence for tree conservation procedures;

(6) Include an afforestation and reforestation plan with a proposed schedule and description of needed site and soil preparation, species, size, and spacing to be utilized;

(7) Show locations and types of protective devices to be used during construction activities to protect trees and areas of forest designated for conservation;

(8) Show the planned limits of disturbance;

(9) Show planned stockpile areas;

(10) Incorporate a commitment to complete all required afforestation and reforestation in accordance with the schedule established by the Department in the

approved forest conservation plan;

(11) Incorporate a binding 2-year management agreement that details how the areas designated for afforestation or reforestation will be maintained to insure protection or satisfactory establishment, including:

(a) watering; and

(b) reinforcement planting provisions if survival rates fall below required standards;

(12) Include any plan for individual tree plantings proposed under §267-30.10 of this Article;

(13) Incorporate a binding protective agreement that:

(a) provides protection for areas of forest conservation, including areas of afforestation, reforestation, retention, and individual tree plantings;

(b) limits uses in areas of forest conservation to those uses that are consistent with forest conservation, including recreational activities and any forest management practice that is used to preserve forest; and

(c) incorporates conservation easements, deed restrictions, covenants, and other agreements as necessary; and

(14) Any other information the Department requires.

C. (1) Within 45 calendar days after receipt of the forest conservation plan, the Department shall notify the applicant whether the forest conservation plan is complete and approved.

(2) If the Department fails to notify the applicant within 45 calendar days, the plan shall be treated as complete and approved.

(3) The Department may require further information or extend the deadline for an additional 15 calendar days under extenuating circumstances.

(4) At the request of the applicant, the Department may extend the deadline under extenuating circumstances.

D. The Department's review of a forest conservation plan shall be concurrent with the review of the subdivision plan, grading permit application, or building permit application associated with the project.

E. A person proposing the development of 5 or fewer lots from a parcel may submit an abbreviated forest conservation plan in a form and content approved by the Department.

F. By December 31, 1991, the Department shall adopt regulations establishing the form and content for abbreviated forest conservation plans for the development of 5 or fewer lots.

G. The Department may revoke an approved forest conservation plan if it finds that:

(1) Any provision of the plan has been violated;

(2) Approval of the plan was obtained through fraud, misrepresentation, a false or misleading statement, or omission of a relevant or material fact; or

(3) Changes in the development or in the condition of the site necessitate preparation of a new or amended plan.

H. In revoking an approved forest

conservation plan under subsection G of this section, the Department shall follow the procedure for revocation of zoning certificates that is set forth in §267-8E of this chapter.

I. If a forest conservation plan is required by this article, a person may not cut, clear, or grade on the development site:

(1) Until the Department has approved the plan; or

(2) In violation of the approved plan.

#### §267-30.6. Retention and Afforestation.

A. A person who applies after January 1, 1992, for subdivision approval, a grading permit, or a building permit for an area of land of 40,000 square feet or more:

(1) Shall conduct afforestation on the lot or parcel in accordance with the following:

(a) for the following land use categories, a site with less than 20% of its net tract area in forest cover shall be afforested up to at least 20% of the net tract area:

(i) natural resources;

(ii) medium density residential uses; and

(iii) low density residential uses; and

(b) for the following land use categories, a site with less than 15% of its net tract area in forest cover shall be afforested up to at least 15% of the net tract area:

(i) business uses;

- (ii) industrial uses;
- (iii) institutional uses; and
- (iv) high density residential uses; and

(2) Shall retain at least the following minimum percentages of the existing forest on the lot or parcel:

TYPE OF USE	MINIMUM PERCENTAGE OF FOREST TO BE RETAINED
Natural resources and low density residential uses	50%
Medium density residential uses	40%
Institutional uses	30%
High density residential uses	30%
Business and industrial uses	15%

B. Subsection A(2) of this section does not apply to the development of a water line, a sewer line, or a sanitary landfill.

C. The following trees, shrubs, plants, and specific areas shall be considered priority for retention and protection and shall be left in an undisturbed condition unless the applicant has demonstrated, to the satisfaction of the Department, that reasonable efforts have been made to protect them and the plan cannot be reasonably altered:

(1) Trees, shrubs, and plants located in sensitive areas, including the floodplain district established under Chapter 131 of this Code, intermittent and perennial streams and their buffers, steep slopes, and critical habitat areas;

(2) Contiguous forest that connects the largest undeveloped or most vegetated tracts of land within and adjacent to the site;

(3) Trees, shrubs, or plants identified on the list of rare, threatened, and endangered

species of the United States Fish and Wildlife Service or the State Department of Natural Resources;

(4) Trees that:

(a) are part of a historic site;

(b) are associated with a historic structure; or

(c) have been designated by the State or the Department as a national, state, or county champion tree; and

(5) Trees having a DBH of:

(a) 24 inches or more; or

(b) 75% of the DBH of the current State champion tree of that species.

D. Subsection C of this section does not require retention of:

(1) A tree that is dead or diseased;

(2) A tree that has been substantially damaged through natural causes and is not expected to survive; or

(3) Unless it is located in an area of forest to be retained, a non-champion tree with a DBH of 30 inches or more.

#### **§267-30.7. Reforestation.**

A. There is a forest conservation threshold established for each land use category, as provided in Subsection B of this section. The forest conservation threshold means the percentage of the net tract area at which the reforestation requirement changes from a ratio of 1/4 acre planted for every acre removed to a ratio of 2 acres planted for every acre removed.

B. After every reasonable effort to minimize the cutting or clearing of trees and other woody plants is exhausted in the development of a subdivision plan and grading and sediment control activities and implementation of the forest conservation plan, the forest conservation plan shall provide for reforestation, or payment into the forest conservation account, according to the formula set forth in Subsection C of this section and consistent with the following forest conservation threshold for the applicable land use category:

<u>Category of Use</u>	<u>Threshold Percentage</u>
Natural resources uses	50%
Low density and medium density residential uses	40%
Institutional uses	30%
High density residential uses	30%
Business and industrial uses	15%

C. (1) If the percentage of forest cover remaining on the net tract area after cutting and clearing are completed equals or exceeds the threshold established by this section, the site shall be reforested at a ratio of 1/4 acre planted for every acre removed.

(2) Each acre of forest retained on the net tract area above the threshold shall be credited against the total number of acres required to be reforested under Paragraph (1) of this subsection.

(3) If the percentage of forest cover remaining on the net tract area after cutting and clearing are completed is less than the threshold established by this section, the site shall be reforested at a ratio of 2 acres planted for every acre removed.

**§267-30.8. Priorities and time requirements for afforestation and reforestation.**

A. The required sequence for forest conservation, after techniques for retaining existing forest on the site have been

exhausted, is as follows:

(1) Selective clearing and supplemental planting on site;

(2) On-site afforestation, if economically feasible, using transplanted or nursery stock that is greater than 1 1/2 inches DBH;

(3) On-site afforestation using whip and seedling stock;

(4) On-site individual tree plantings conducted in accordance with §267-30.10 of this article;

(5) Landscaping of areas under a landscaping plan that establishes a forest that is at least 35 feet wide and covers at least 2,500 square feet of area;

(6) Off-site afforestation using transplanted or nursery stock that is greater than 1 1/2 inches DBH;

(7) Off-site afforestation using whip and seedling stock;

(8) Natural regeneration on-site; and

(9) Natural regeneration off-site.

B. A sequence other than the one described in Subsection A of this section may be used for a specific project if necessary to achieve the objectives of the County Land Use Plan or County land use policies or to take advantage of opportunities to consolidate forest conservation efforts.

C. The following are priorities for reestablishment:

(1) Forest buffers adjacent to intermittent and perennial streams, to widths of at least 50 feet;

(2) Forest corridors connecting existing forests within or adjacent to the site, to widths of at least 300 feet where possible;

(3) Forest buffers adjacent to critical habitat areas;

(4) Plantings to stabilize slopes of 25% or greater and slopes of 15% or greater with a soil K value greater than 0.35, including the slopes of ravines or other natural depressions;

(5) Plantings in the Natural Resources District established under §267-41 of this chapter;

(6) Buffers adjacent to areas of differing land use, where appropriate, or adjacent to highways or utility rights-of-way; and

(7) Forested areas adjacent to existing forests so as to increase the overall area of contiguous forest cover, when appropriate.

D. A person required to conduct afforestation or reforestation under this article shall accomplish the afforestation or reforestation in accordance with the schedule established by the Department in the approved forest conservation plan. The Department shall ensure that the schedule is structured to:

(1) Require completion of the afforestation or reforestation within 2 years;

(2) Provide an optimum opportunity for successful afforestation;

(3) Avoid delay to development and construction activities; and

(4) Take into consideration the phasing of the development project.

#### **§267-30.9. Payment in lieu of afforestation**

and reforestation.

A. If a person required to conduct afforestation or reforestation under this article demonstrates to the satisfaction of the Department that reforestation or afforestation on-site or off-site cannot be reasonably accomplished, the person shall contribute money at a rate of 40 cents per square foot of the area of required planting to the County.

B. Money contributed in lieu of afforestation or reforestation under this subsection shall be paid within 90 calendar days after issuance of the grading permit or building permit for the development project, whichever occurs first.

C. The County shall accomplish the reforestation or afforestation for which the money is deposited within 3 years after receipt of the money.

D. Money contributed under this section shall remain in the account for a period of 3 years, and at the end of that time any portion that has not been used to meet the reforestation requirements shall be returned to the person who provided the money.

E. Money contributed under this section:

(1) May be used only for reforestation and afforestation, including site identification, acquisition, and preparation;

(2) Shall be deposited in a separate forest conservation account; and

(3) Shall not revert to the general fund.

#### **§267-30.10. Individual tree plantings.**

A. Individual tree plantings conducted in accordance with §267-30.8A of this article shall be credited towards the remaining forest conservation requirement at a rate of twice

the square footage of the area of mature canopy of the individual trees planted.

**B.** To qualify for a credit under this section, the plantings shall:

(1) Be conducted in accordance with a landscaping plan submitted with the forest conservation plan;

(2) Be conducted in areas protected in accordance with §267-30.5C.(13) of this article; and

(3) Include trees of a caliper of at least 1 1/2 inches.

**C.** The landscaping plan shall include:

(1) A list of the proposed tree species to be utilized;

(2) The number of trees to be planted;

(3) A calculation of the square footage of the mature canopy of the trees; and

(4) An overlay showing the location of the trees on the preliminary subdivision plan or the concept plan.

**D.** The location, spacing, and species of trees planted in accordance with this section shall be as approved by the Department in the forest conservation plan, and the Department shall encourage plantings along streets, between buildings, in parking lots, and in other common-area sites where the plantings may provide buffering, energy conservation, and other environmental benefits.

**E.** Planting under this section shall be conducted in accordance with urban forestry standards recognized by the Forestry Division of the Maryland Department of Natural Resources.

#### **§267-30.11. Required tree species.**

**A.** Tree species used for afforestation and reforestation shall be native to the County and selected from a list of approved species established by the Department.

**B.** Tree species for individual tree plantings conducted in accordance with §267-30.10 of this article shall be selected from a list of approved species established by the Department.

**C.** The Department may approve a request for permission to use a species that is not on the list of approved species if the request:

(1) Is in writing;

(2) Describes the circumstances that make use of the species appropriate; and

(3) Is not based solely on economic factors.

**D.** Before December 31, 1991, the Department shall adopt regulations establishing a list of tree species to be used for afforestation, reforestation, and individual tree plantings.

#### **§267-30.12. Surety for forest conservation.**

**A.** Before receiving a grading permit or a building permit, a person required to conduct afforestation, reforestation, or individual tree plantings under this article shall furnish surety in the form of a bond, an irrevocable letter of credit, or other security approved by the Department. The surety shall:

(1) Assure that the afforestation, reforestation, and individual tree plantings are conducted and maintained in accordance with the approved forest conservation plan;

(2) Be in an amount equal to the estimated cost, as determined by the Department, of afforestation, reforestation, and individual tree plantings;

(3) If the development is scheduled to be constructed in phases, cover the portion of the development within the limits of disturbance delineated in the grading permit application; and

(4) Be in a form and of a content approved by the County Attorney.

B. If after 1 growing season the afforestation, reforestation, and individual tree plantings meet or exceed the standards of the Forest Cover Conservation and Replacement Manual, two-thirds of the amount of any cash bond that has been posted shall be returned. If the surety has been given in the form of a letter of credit, a surety bond, or another form of surety, the County shall notify the appropriate entity that liability has been reduced by two-thirds.

C. If after 2 growing seasons the afforestation, reforestation, and individual tree plantings meet or exceed the standards of the forest cover conservation and replacement manual, the remaining amount of the cash bond, letter of credit, surety bond, or other surety shall be returned or released.

**§267-30.13. Standards for protecting trees from construction activities.**

A. Before cutting, clearing, grading, or construction begins on a site for which a forest conservation plan is required by this article:

(1) All forest that is to be retained shall be clearly marked with flags, signs, or other materials approved by the Department;

(2) Protection devices approved by the

Department shall be installed; and

(3) The Department shall inspect the site to ensure that the marking and protection devices are in place.

B. Unless approved by the Department, the following activities are prohibited within the dripline of a tree that is to be retained:

(1) Grading;

(2) Filling;

(3) Trenching;

(4) Tunneling;

(5) Storage of construction materials or equipment;

(6) Placement or operation of vehicles, equipment, or construction trailers;

(7) Sediment and erosion control devices; and

(8) Any other activity that may result in soil compaction or damage to a tree.

C. When granting approval for an activity listed in Subsection B of this section, the Department shall require that appropriate actions to mitigate tree damage be undertaken, including but not limited to such actions as root aeration, tree wells, and pruning.

D. After consultation with the Forestry Division of the Maryland Department of Natural Resources, the Department shall adopt, by December 31, 1991, regulations establishing standards for:

(1) Granting approval for the activities listed in Subsection B of this section; and



(2) The mitigation activities required by Subsection C of this section.

**§267-30.14. Variances.**

A. The Board of Appeals may grant a variance to this article in accordance with this section and §267-11 of this chapter.

B. In granting a variance to this article the Board shall issue specific written findings of fact demonstrating that the granting of the variance will not adversely affect water quality.

**§267-30.15. Penalties.**

A. A person who violates any provision of this article or any regulation or order adopted or issued under this article is liable for a penalty not exceeding \$1000, which may be recovered in a civil action brought by the Department. Each day a violation continues is a separate violation.

B. A person who violates any provision of a forest conservation plan or an associated management plan approved under this article is liable for a penalty of \$1.20 per square foot of the area found to be in violation of the plan or agreement, which may be recovered in a civil action brought by the Department. Each day a violation continues is a separate violation.

C. Money collected under Subsection B of this section shall be deposited in the forest conservation account required by §267-30.8 of this article, and may be used by the Department for purposes related to implementing this article.<sup>2</sup>

2.

The provisions of Article V.A entitled **Forest and Tree Conservation** shall not apply to development conducted in accordance with:

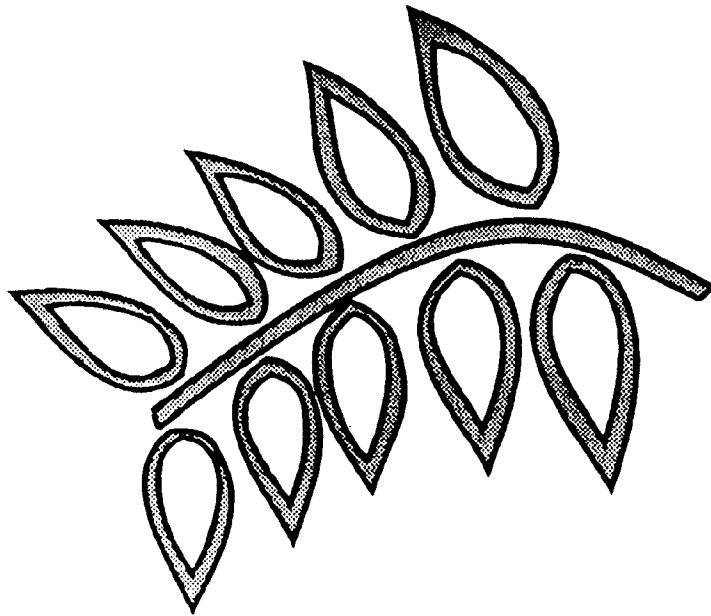
- A. A preliminary subdivision plan approved on or before December 31, 1991;
- B. A grading permit issued on or before December 31, 1991;
- C. C building permit issued on or before December 31, 1991;
- D. A conventional development with open space for which a concept plan is approved on or before December 31, 1991; and
- E. A planned residential development for which a concept plan is approved on or before December 31, 1991.

**Exempt development loses its exemption and becomes subject to all provisions of this section if:**

- A. The preliminary subdivision plan or the grading or building permit under which the development is conducted was approved or issued on or after July 1, 1991, and on or before December 31, 1991; and
- B. An extension of the preliminary plan or grading or building permit is granted.

## Appendix C

# Forest Stand Delineation Guidelines



Harford County Department  
of Planning and Zoning  
January, 1992

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# **FOREST STAND DELINEATION GUIDELINES**

## **I. INTRODUCTION**

These guidelines discuss requirements of the Forest Stand Delineation (FSD) necessary to meet the provisions of Harford County's Forest Conservation Ordinance. The FSD must be submitted before application for preliminary plan, site plan, grading permit, or building permit.

The purpose of the FSD is to assess existing environmental features and the structural condition of the forested site to be developed. It involves two steps; the preparation of two maps and a field assessment. Two types of data forms will be filled out in the field, and a narrative of the environmental and structural features of the forest, synopsis and completed checklist will be submitted with the maps. The field assessment will involve the collection of data on the types, structural arrangement, location and numbers of trees present.

The FSD is intended to lay the groundwork for the Forest Conservation Plan (FCP) by defining retention, reforestation and/or afforestation areas, thereby determining the most environmentally sound locations for the development footprint. The FCP will then be submitted along with the preliminary plan, site plan, the grading permit application, or the building permit application.

These guidelines explain the FSD preparation process in detail. Given that it is a new Ordinance with new requirements, the Department intends to continue working on refining and clarifying the process and procedures as implementation proceeds. Therefore, all comments and suggestions for further improvements will be greatly appreciated.

## **II. APPLICATION OF THE ORDINANCE**

After January 1, 1992, an approved FSD is required for development on any area of land 40,000 square feet or more unless the proposed development meets one of the exemptions listed under Section 267-30.0 of the Ordinance. An applicant must receive approval of an FSD for the lot or parcel prior to the submittal of a preliminary subdivision plan, grading plan or building permit application.

The FSD shall be prepared by a licensed forester, licensed landscape architect or other professional approved by the Department (see Appendix A). However, in many circumstances, portions of the required site information will be generated through a collaborative effort between an applicant, engineer, forester, landscape architect, or other professional. Upon submittal, the FSD will be reviewed by the Department of Planning and Zoning (the Department).

Within 30 calendar days from receipt of the delineation, the applicant will be notified as to whether the submittal is complete and correct, or if revisions are necessary. The delineation must meet the minimum submittal requirements in order to be deemed adequate. The deadline may be extended for an additional 15 calendar days under extenuating circumstances, or if the Department requires further information.

**Components of the FSD - Required Information:**

1. Forest Survey Map;
2. Environmental Features Map;
3. Plot Sampling Data Forms;
4. Stand Summary Forms;
5. Stand Condition Narrative;
6. Synopsis;
7. Completed checklist.

**III. FOREST STAND DELINEATION PREPARATION**

**1. Map Preparation**

The first step in FSD development involves the preparation of two maps (the Environmental Features Map and parts of the Forest Survey Map) before the field assessment is undertaken. Both maps use a base map that includes property boundaries, topographic contours, and, if present, streams and wetlands.

The Environmental Features Map consists of soils, steep slopes and buffers, and should be completed in-house before the field assessment takes place. The Forest Survey Map involves, among other things, mapping special habitats and historic areas in-house, and collecting tree and forest structure data during the field assessment. Additional information including map notation and map symbology is needed to make these maps useful tools for field work and to aid in reviewing the FSD.

A 50' or 100' scale will be used for these maps, though a different scale may be used with the consent of the Department of Planning and Zoning. The scale selected must be maintained throughout the development review process. Sheet sizes shall either be 20 x 24 inches, 24 X 36 inches or 30 x 42 inches.

The contents for each map, along with sources of information used to generate these maps, are explained below. A list of mapping requirements necessary to generate the Environmental Features Map and the Forest Survey Map is provided in Figure 1.

**A. Environmental Features Map**

The Environmental Features Map contains information including steep slopes, hydric soils, adjacent land uses, and buffers for non-tidal wetlands, 100-year floodplain and the Natural Resource District. This map will be used as a reference tool for the Forest Survey Map. An example Environmental Features Map is shown in Figure 2.

**B. Forest Survey Map**

The Forest Survey Map shows the delineation of forest stand structure and trees on the site. It contains information concerning the existing forest obtained from the field assessment. An example Forest Survey Map is shown in Figure 3.

Some items such as tree lines, historic buildings and significant plant and wildlife habitat areas must be delineated in-house before the field assessment is conducted. Sample plot locations shall also be delineated on the Forest Survey Map during map preparation for use during the field assessment.



## **Figure 1: Forest Stand Delineation Mapping Requirements**

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### **Environmental Features Map**

**The following items shall be displayed on the Environmental Features Map.**

- a. Proposed subdivision name - This should include any pertinent phasing or sectional information regarding this subdivision.
- b. Owner name and address/contract purchaser.
- c. Name and address of the individual or firm preparing the FSD.
- d. The seal and signature of a licensed forester or licensed landscape architect, if applicable.
- e. Tax map, parcel number and deed reference number.
- f. Date of the drawing.
- g. Zoning.
- h. North arrow.
- i. Acreage of the lot or parcel.
- j. Site vicinity map - This map should show the location of the lot or parcel and the adjacent surroundings, including major roads, at an appropriate scale.
- k. Owner's name and zoning designation of the adjacent properties.
- l. Property boundaries.
- m. Topographic contours at intervals not greater than five feet - This information is available for limited areas in Harford County at a scale of 1" = 200' from the Harford County Department of Planning and Zoning. Field run topography is equally acceptable.

- n. Soils - The following soils shall be highlighted on the map: hydric and potentially hydric soils, highly erodible soils (these can be referenced and/or purchased at the front counter of the Department) and prime agricultural soils (Appendix C). Also, soils with any structural limitations shall be highlighted. A table shall be placed on the map which lists the highlighted soils and the applicable constraint(s).

**The following items shall be displayed on the Environmental Features Map if they are applicable to the site.**

- o. Board of Appeals case number(s).
- p. Location of existing buildings - This can be determined from 1" = 200' air photography available from the Department of Planning and Zoning or field surveys.
- q. Existing easements or rights of way.
- r. Perennial and intermittent streams - All streams shall be verified through field reconnaissance. Any associated floodplain or Natural Resource District areas shall also be included.
- s. Nontidal wetlands - Floodplain and Natural Resource District (§ 267-41.D.) areas shall be included. Acreage of these areas shall be provided as well.
- t. Slopes greater than 15% and less than 25% - This information shall be determined based on topographic contours and shaded on the map. Acreage of these areas shall also be provided. Natural Resource District areas shall also be included. Acreage of these areas shall also be provided.
- u. Slopes greater than 25% - This information shall be determined based on topographic contours and cross hatched on the map. Any associated Natural Resource District areas shall be included. Acreage of these areas shall also be provided.
- v. Limits of the Harford County Chesapeake Bay Critical Area Overlay District. Any associated natural features and/or required buffers shall also be included. Acreage of these areas shall also be provided.

## **Forest Survey Map**

**The following items shall be displayed on the Forest Survey Map.**

- a. The name and address of the individual or firm preparing the FSD.
- b. The seal and signature of a licensed forester or licensed landscape architect, if applicable.
- c. Date of the drawing.
- d. Property boundaries.
- e. North arrow.
- f. Net Tract Area - This area shall be determined based on the definition of "Net Tract Area" within the Harford County Forest Conservation Ordinance, (Bill number 91-31).

**The following items shall be included on the Forest Survey Map if they are displayed on the Environmental Features Map.**

- g. Perennial and intermittent streams.
- h. Nontidal wetlands.
- i. Limits of the Harford County Chesapeake Bay Critical Area Overlay District - Any required buffers shall also be included.

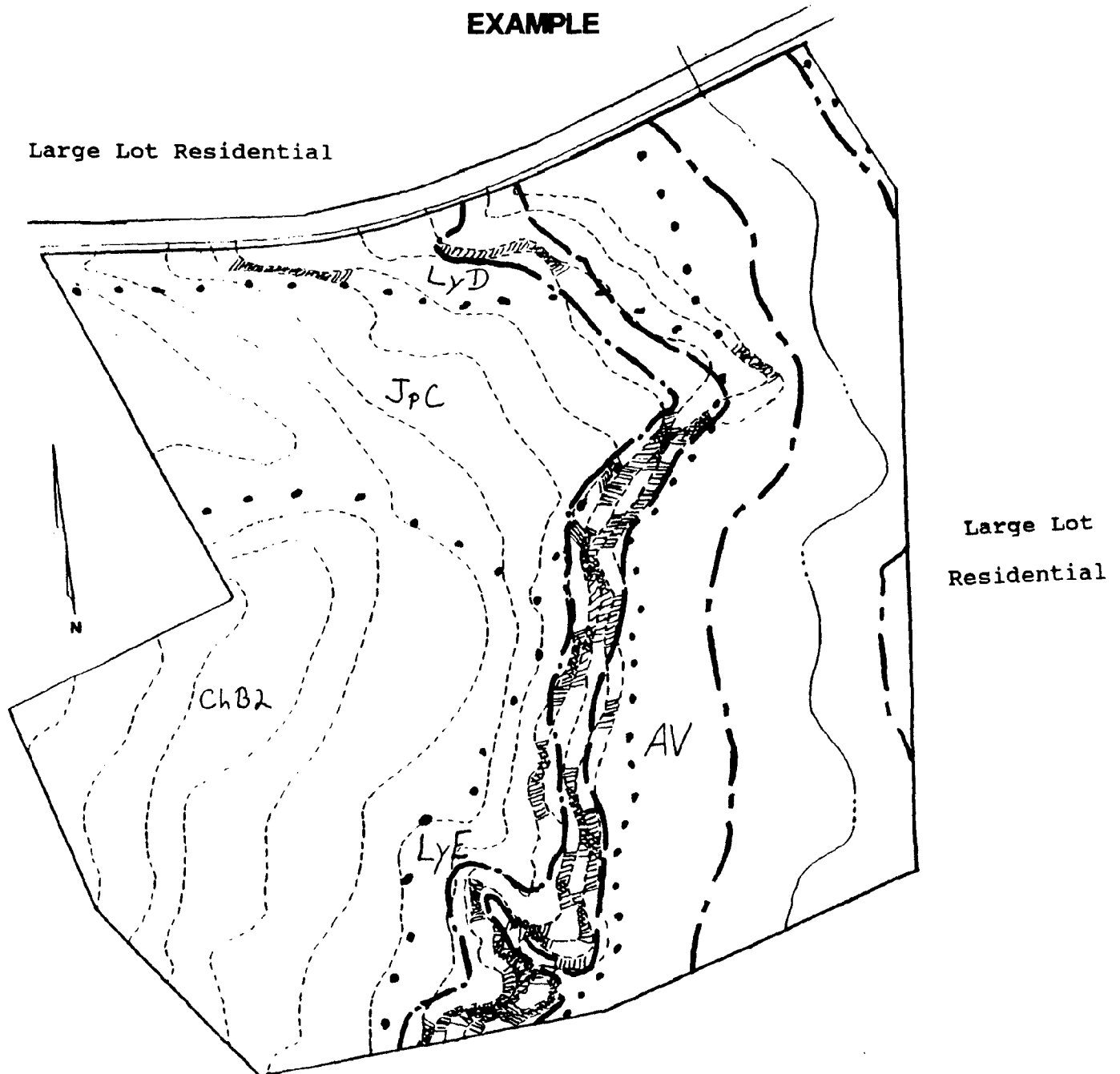
**The following items shall be displayed on the Forest Survey Map if they are applicable to the site.**

- j. Forested and unforested areas - A circumferential tree line shall be delineated around all tree stands of similar type or species characteristics. This line shall be based on the perimeter of the drip line of individual trees. Wooded areas should be distinguished from non-wooded areas. Other features such as old fields, specimen trees, and hedgerows shall also be identified.
- k. Historic sites - Historic sites identified on-site shall be delineated on the map and information regarding forested areas, trees, shrubs, plants and gardens shall be provided for an area of 200 yards around the historic structure. Historic sites on adjacent properties shall be noted on the map.

- l. Sample plot locations - These sites shall be represented by points on the map and identified by a number which corresponds to the appropriate plot description in the FSD narrative.
- m. Individual trees over 24" diameter at breast height - Tree boundaries shall be delineated on the map using the dripline. Trees shall be identified within a chart on the map by scientific (Latin) name. Common tree names may be included also.
- n. Rare, threatened and endangered trees, shrubs, plant and animal species, communities and habitat areas - A dot map (figure 4) shows the general location of these areas in Harford County. If the location of the FSD appears to be in proximity to one of the dots on the map, please contact the Harford County Department of Planning and Zoning. The boundaries of these areas shall be delineated and labeled on the Forest Survey Map.
- o. Trees designated as national, state or county champions and/or trees which have a DBH of 75% of a designated champion - Tree locations shall be highlighted and labeled as a champion or 75% of a champion. The scientific and common name of the tree shall also be noted on the Forest Survey Map. Lists of State and County champion trees can be referenced and/or purchased at the front counter of the Department of Planning and Zoning.
- p. Forest stands extending off-site - Tree lines shall be delineated a minimum of 100' off-site to show the general size and area of these stands.

Figure 2: Environmental Features Map

EXAMPLE



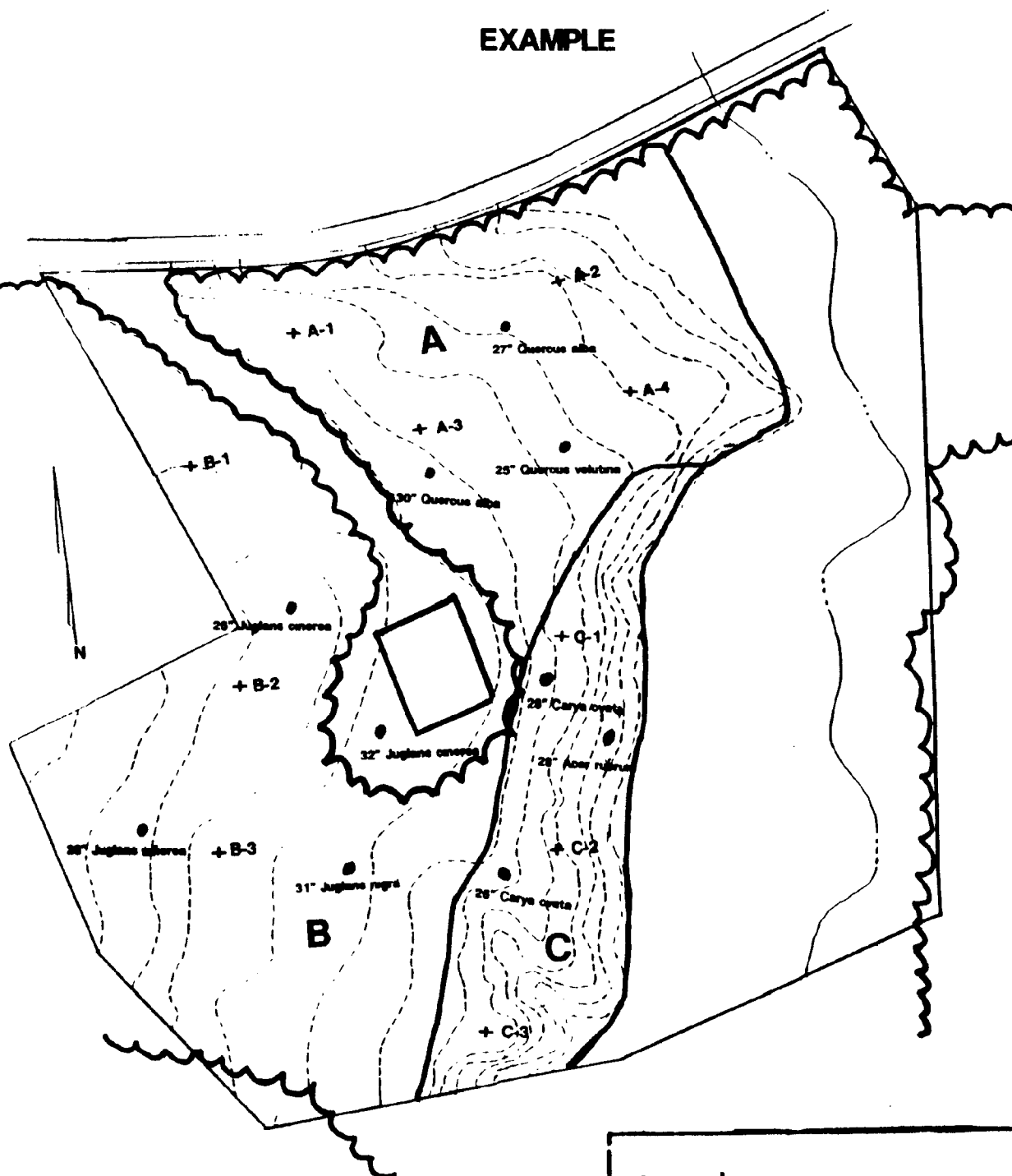
- NOT TO SCALE -

Legend

- Streams
- ~~~~~ Nontidal Wetlands
- ===== 100-year Floodplain
- . - . - Natural Resource District
- ..... Soils
- \\\\\\\\ Slopes 15% - 24%
- XXXX Slopes 25% or Greater






Figure 3 : Forest Survey Map

EXAMPLE



- NOT TO SCALE -

Legend

- Streams
-  Historic building
-  Forested/nonforested areas
-  Specimen tree
-  Stand Boundary
-  Plots

1) Mapping Sample Plot Locations

Sample plot locations shall be drawn as points on the Forest Survey Map during map preparation and inventoried during the field assessment. The Ordinance requires that the following specimen trees be considered priority for retention and protection. These trees shall be located and drawn on the Forest Survey Map:

- Trees having a DBH of 24 inches or greater;
- Trees designated as national, state or county champions;
- Trees having 75% of the DBH of the current state champion tree of that species.

Lists of State champion trees, State champion trees in Harford County, and County champion trees can be referenced and/or purchased at the front counter in the Department of Planning and Zoning.

Sample plots will be inventoried to determine tree species and forest characteristics. To determine the number of sample plots required, the forested acreage of the site must be determined. To calculate the forested acreage, divide the Forest Survey Map into sections based on the following: forest stands characterized by wooded and nonwooded areas (tree lines), soils, upland vs. bottomland areas, north- and south-facing aspects, and knowledge of Harford County forest patterns. Measure each section to determine acreage.

The number of sample plots must be sufficient to adequately characterize the forest stands. A minimum of one sample plot per stand is required for the Forest Structure analysis. Exceptions to the minimum sample number may be made if it can be proven that a confidence interval of 67% is maintained. To meet this standard, the following sampling regime is recommended:

<u>Acres</u>	<u>Number of Sample Plots*</u>
0 - 40	1 plot/acre (minimum 2 plots)
41 - 80	$20 + (0.5 \times \text{number of acres greater than } 40)$
81 - 200	$40 + (0.25 \times \text{number of acres greater than } 80)$

\* Always round up.

## Sampling Intensity (Example)

### Stand #1

- # acres in stand = 16
- sampling intensity = 1 plot/acre
- = 16 plots

The diagram illustrates three forest stands. Stand 1 is a small oval at the top. Stand 2 is a larger rounded rectangle at the bottom left. Stand 3 is a large rectangle at the bottom right, partially overlapping with Stand 2.

### Stand #2

- # acres in stand = 75
- sampling intensity =  $20 + (0.5 \times \text{acres greater than } 40)$
- =  $20 + (0.5 \times 35)$
- = 38 plots

### Stand #3

- # acres in stand = 130
- sampling intensity =  $40 + (0.25 \times \text{acres greater than } 80)$
- =  $40 + (0.25 \times 50)$
- = 53 plots

## 2) Plot Distribution

Once the number of sample plots has been determined, distribute the sample plots within the forest stands. Locate, draw and number the plots as points on the Forest Survey Map. Position the points along one or more lines through all stands, traversing the site perpendicular to the topography, ensuring that the plot locations represent each community type. Number the points sequentially starting at or near a location indicated on the map.

## 2. Field Assessment

The purpose of the field assessment is to supplement and verify the data compiled on the Forest Survey Map and Environmental Features Map, noting any discrepancies. The field assessment includes the following: plot sampling within forest stands, an inventory of forested stand characteristics and a survey of individual specimen trees.

The Natural Resource District and 100-year floodplain must be field-assessed for specimen trees and forest structure only in areas on the site that will be disturbed. A 50' expanse on either side of the area to be disturbed must be included in the field assessment.

### A. Plot Sampling

During the field assessment, establish the plot locations in a manner representative of stand structure and the forested environment. Stake and flag the plot centers and verify plot locations on the Forest Survey Map. Mark the plot center with a three foot stake flagged at the top with bright surveyor's flagging. Indicate stand number and plot number or letter on the flagging. Tie a minimum of four flags around the plot perimeter indicating the plot limits. Indicate on the map the color of the flags used to locate sample plots.

Sampling shall be conducted through the fixed-plot method, which is preferred by the Department; however, other methods may be approved by the Department. The fixed-plot method involves establishing sample plots of a one-tenth (1/10) acre circle with a 37.2' radius. The variable plot method shall be used to determine basal area using a ten-factor prism. The ten-factor prism may be used with a prism pole to measure the 37.2' radius from the plot center. Shrubs can be sampled with a minimum one one-hundredth (1/100) acre plot with a 11.8' radius within the 1/10 acre plot.

Collect data within each sample plot along the defined sampling route. Within each sample plot, record measurements on a Plot Sampling Data Form (Figure 4). Complete one Plot Sampling Data Form per plot within a stand. When all plots have been sampled within a stand, complete one Stand Summary Form (Figure 5) per stand. The Stand Summary Form is a compilation of all plot data on a per-acre basis for that stand. The technique for rating forest structure is explained in Appendix B.

### B. Specimen Tree Survey

After each plot is sampled, a forest stand can be inventoried for individual specimen trees. The tree survey shall involve identifying individual specimen trees to species level, drawing their locations as points on the Forest Survey Map and identifying them on the map by scientific name. Use landmarks such as plot centers, large rocks, streams, or nearby roads to identify tree locations. Measure and note distance and azimuth from the landmark.



Figure 4 :

# EXAMPLE PLOT SAMPLING DATA FORM

PROPERTY: \_\_\_\_\_ STAND NO: \_\_\_\_\_ INVESTIGATOR: \_\_\_\_\_

LOCATION: \_\_\_\_\_ PLOT NO: \_\_\_\_\_ DATE: \_\_\_\_\_

AREA DESCRIPTION: \_\_\_\_\_

STAND ACREAGE: \_\_\_\_\_

BASAL AREA: \_\_\_\_\_

Forest Structure Rating					
Forest Structure Variable	Sample Points (Y or N)				
	1	2	3	4	5
Canopy Coverage					
Herbaceous Ground Cover					
Downed Woody Debris					
Invasive Plant Cover					

SIZE CLASSES: A = 2' - 5.9'; B = 6' - 11.9'; C = 12' - 17.9'; D = 18' - 23.9'; E = 24' or Greater; / = Dead

 Tree Species (Note dominant (\*)  
and co-dominant (\*\*) species)

 Number of Dead and Alive Trees within Size Classes  
(EXAMPLE: A E A D C C C B B)

Total Number of Live Trees / Size Class :    A =            B =            C =            D =            E =

Total Number of Dead Trees: \_\_\_\_\_ Number of Shrubs per 1/100 Acre Plot: \_\_\_\_\_

Understory Species (Shrub, Herbaceous): \_\_\_\_\_

COMMENTS: \_\_\_\_\_

**Figure 5:**

**EXAMPLE**

**STAND SUMMARY FORM**

PROPERTY: \_\_\_\_\_ Date: \_\_\_\_\_

Prepared by: \_\_\_\_\_

**STAND SUMMARY (2 Stands per Form)**

Stand Variable	Stand No.:    Acreage:	Stand No.:    Acreage:
Dominant forest association: (SAF forest cover type)		
Size class of dominant trees:		
Number of trees/acre:		
Number of tree species:		
Basal Area:		
Number of dead trees/acre:		
Common understory species:		
(FOREST STRUCTURE RATING)		
Number of shrubs/ 1/100 acre plot:		
% canopy coverage:		
% herbaceous ground cover:		
% downed woody material:		
% exotic or invasive species:		
Forest Structure Value:		

Total Forested Acreage on Site: \_\_\_\_\_

COMMENTS:

If a stand includes a number of specimen trees and is worthy of retention, circle the tree group on the Forest Survey Map and discuss it in the narrative and synopsis.

Note locations of trees, shrubs or plants identified as Federal or State rare, threatened or endangered species on the Forest Survey Map and the Plot Sampling Data Form. Throughout the sampling process, keep additional records of species observed and report these to the Department of Planning and Zoning and the Department of Natural Resources. A map of general locations of significant plant and wildlife habitats in the County is provided in Figure 6. Also note specimen trees on a historic site or near a historic structure.

After all sample sites have been assessed and inventories completed, create a final version of the Forest Survey Map, noting any discrepancies found in the field. All data sheets must be submitted along with the Forest Survey Map.

#### **IV. NARRATIVE STATEMENT OF SAMPLE PLOTS AND STANDS**

The narrative is intended to be a professional evaluation of findings on the site (see Figure 7 for example). Develop a narrative which provides greater insight into priority forest stands for retention and stand management. Support the evaluation by discussing the structural arrangement of the stands and condition of the forest community within each stand, including plant and animal species composition and diversity. Discuss stand potential to withstand local disturbance and potential for transplanting. Materials describing proper reforestation and transplant methods can be referenced and/or purchased at the front counter in the Department of Planning and Zoning.

Include any additional information on the following: specimen trees, significant vegetative inclusions within the stand that are part of contiguous forested areas or wildlife corridors, wildlife cover or habitat, habitat areas of local significance, prevalence of exotic or invasive shrubs and plants (listed in Figure 8), historic sites, adjacent land uses, and comments on evidence of past management.

#### **V. SYNOPSIS**

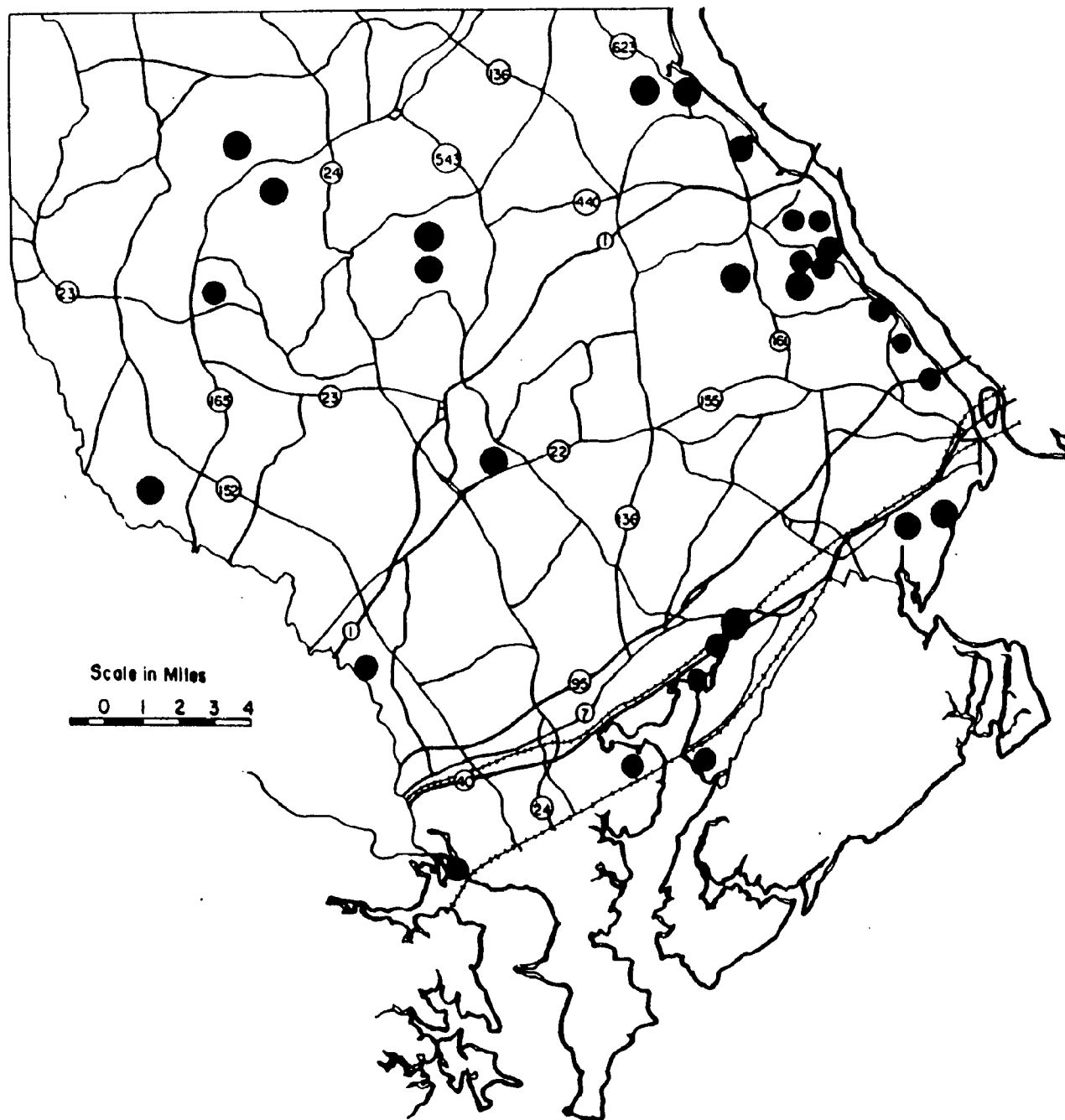
The Synopsis is desired to create an overview of site features and existing forest stand conditions by bringing together information developed in the narrative. This analysis will, from an environmental perspective, identify areas which are more suitable for preservation or conservation and areas which are more suitable for development.

The Synopsis should summarize existing site conditions discussed in the narrative and discuss the different habitat components such as forest associations, pastures, agriculture, fallow fields, forested and non-forested wetlands. A species list of Maryland Forest Associations can be referenced and/or purchased at the front counter of the Department of Planning and Zoning.

The Synopsis should also include a comparison which shows the relative quality of the forested areas and communities using the data summarized in the narrative. For example, if a stand includes a group of trees with DBHs of 24" and greater and is worthy of retention, mention it here. Additionally, the Synopsis should also give an overview of areas that may be retained, afforested, and reforested.

#### **VI. FSD SUBMITTAL**

Once the FSD is complete (including finalized maps, data sheets, narrative and synopsis), submit it to the Development Review Section of the Department of Planning and Zoning with a completed Forest Stand Delineation checklist (Figure 9).

**Figure 6 :****General Locations of Significant Plant and Wildlife Habitats  
in Harford County**

**Figure 7 :**

**STAND CONDITION NARRATIVE (EXAMPLE)**

(Site Name)

(Date)

The vegetation on-site was characterized by species composition and divided into stands. Fifteen forest stands were identified on-site. A 1/10 acre fixed plot sampling technique was used to sample forest stand conditions at 28 points on-site (see Plot Sampling Data sheets). One sample plot per stand was sampled for forest structure (see Stand Summary/Forest Structure Rating sheets). Sample point locations were chosen randomly.

Overall, the health of the forest stands was found to be good. With the exception of one stand which had been recently harvested for firewood, little evidence of management was found throughout the site. No rare, threatened or endangered species were observed. A federal historic site, the Brownfield homestead, lies immediately due west of the east property boundary. No significant disease or exotic (gypsy moth) invasion was observed.

**Stand #1:**

**Stand Condition:**

Stand #1 is dominated by Tulip poplar (size class 6-10") with Virginia pine being co-dominant. No specimen trees were found during the field survey. Holly is the dominant understory species. The herbaceous growth is dominated by poison ivy and the dominant exotic species, Belle honey suckle, occurs in the northern part of the stand in breaks between the Virginia pine. Forest structure for the stand is low (13) due to the frequent breaks in canopy and the low size class of dominant trees. There is evidence of recent firewood harvesting of oak. Numerous Tulip poplars suffered trunk injuries due to poor harvesting techniques. Regenerative potential of the site is high due to the thick coverage of free-to-grow oak seedlings. The condition of the stand does not support retention.

**Environmental Features:**

The southwest section of the stand contains moderately steep slopes (17% slope) along an unnamed creek which crosses the southwest corner of the parcel. The stream and slopes are part of the NRD. No hydric soils occur outside the NRD. Adjacent land uses are secondary roads and large lot residential areas.

...  
...  
...

**Stand #15: ...**

**Figure 8 :**

**EXOTIC or INVASIVE PLANTS**

These species may displace native vegetation and disrupt forest ecosystems

**Herbaceous Plants**

Common Name	Scientific Name	Common Name	Scientific Name
Garlic Mustard	<u>Alliaria officinalis</u>	Day-lily	<u>Hemerocallis fulva</u>
Musk (nodding) thistle	<u>Arthraxon hispidus</u>	Purple Loosestrife	<u>Lythrum alatum</u>
Plumeless thistle	<u>Carduus nutans</u>	Moneywort	<u>Lysimachia nummularia</u>
Spotted knapweed	<u>Carduus acanthoides</u>		<u>Myosoton aquaticum</u>
Bull thistle	<u>Centuria maculosa</u>	Wild reed	<u>Phragmites australis</u>
Canada thistle	<u>Cirsium vulgare</u>	Japanese knotweed	<u>Polygonum</u>
Crown vetch	<u>Cirsium arvense</u>	Asian tearthumb	<u>Polygonum perfoliatum</u>
Beefsteak Mint	<u>Coronilla varia</u>	Russian thistle	<u>Salsola iberica</u>
	<u>Eulalia vimineus</u>	Johnson grass	<u>Sorghum halepense</u>
		Cocklebur	<u>Xanthium</u> spp.

**Vines**

Porcelain Berry	<u>Ampelopsis brevipedunculata</u>
Oriental Bittersweet	<u>Celastrus orbiculatus</u>
Climbing Eyonymus, Wintercreeper	<u>Euonymus fortunei</u>
English Ivy	<u>Hedera helix</u>
Japanese Honeysuckle	<u>Lonicera japonica</u>
Kudzu	<u>Pueraria lobata</u>
Periwinkle	<u>Vinca minor</u>
Wisteria	<u>Wisteria floribunda</u> , <u>W. sinensis</u>

**Shrubs**

Japanese Barberry	<u>Berberis thunbergii</u>	Common Buckthorn	<u>Rhamnus cathartica</u>
Russian Olive	<u>Eleagnus angustifolium</u>	European Buckthorn	<u>Rhamnus frangula</u>
Autumn Olive	<u>Eleagnus umbellata</u>	Multiflora Rose	<u>Rosa multiflora</u>
Winged Euonymus, Winged Wahoo	<u>Euonymus alatus</u>	Strawberry-raspberry,	<u>Rubus illecebrosus</u>
Privet	<u>Ligustrum</u> sp.	Balloonberry	
Brush Honeysuckles, including	<u>Lonicera</u> sp.	Wineberry	<u>Rubus phoenicolasius</u>
Belle Honeysuckle	<u>Lonicera x bella</u>	Japanese Spiraea	<u>Spiraea japonica</u>
Amur Honeysuckle	<u>Lonicera maackii</u>	Coralberry	<u>Symphoricarpos orbiculatus</u>
Morrow's Honeysuckle	<u>Lonicera morrowii</u>		
Tartarian Honeysuckle	<u>Lonicera tatarica</u>		

**Trees**

Norway Maple	<u>Acer platanoides</u>
Tree of Heaven	<u>Ailanthus altissima</u>
(Catalpa	<u>catalpa</u> sp.)*
Russian Olive	<u>Eleagnus angustifolia</u>
(White Mulberry	<u>Morus alba</u> )*
Empress Tree	<u>Paulownia tomentosa</u>
(White Spruce	<u>Picea glauca</u> )*
Sweet Cherry, bird Cherry	<u>Prunus avium</u>

\*Species in parentheses are minor problems (Maryland Natural Heritage Program, 25 July 1990).

**Figure 9 :**

## **FOREST STAND DELINEATION CHECKLIST**

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A Forest Stand Delineation (FSD) submitted to Harford County for approval must, at a minimum, include the following components: **1. Environmental Features Map; 2. Forest Survey Map; 3. Plot Sampling Data Forms; 4. Stand Summary Forms; 5. Stand Narrative; and 6. Synopsis.** If an item in this checklist is not applicable to the site, please write NA in the space provided.

**1. Environmental Features Map** - All of items listed in Section A should be displayed on the Environmental Features Map. The items in Section B will be displayed if they are applicable to the site.

### **Section A**

- ☐ Proposed subdivision name including any pertinent phasing or sectional information.
- ☐ Owner name and address/contract purchaser.
- ☐ The name and address of the individual or firm preparing the FSD.
- ☐ Seal and signature of licensed forester, landscape architect as applicable.
- ☐ Tax map, parcel number and deed reference.
- ☐ Date of the drawing.
- ☐ Zoning.
- ☐ North arrow.
- ☐ 50' or 100' scale. Other scales will be accepted with Department of Planning and Zoning consent. The scale selected must be consistent with all other plans submitted to Harford County during the development review process.
- ☐ Acreage of the lot or parcel.
- ☐ Site vicinity map.
- ☐ Owner's name and zoning designation of the adjacent properties.
- ☐ Property boundaries.
- ☐ Topographic contours at intervals not greater than 5 feet.
- ☐ All soils present on-site with any hydric soils, highly erodible soils, prime agricultural soils, and soils with structural limitations highlighted.

### **Section B**

- ☐ Board of Appeals case number(s).
- ☐ Location of existing buildings.

☐ Existing easements or rights of way.

☐ Perennial and intermittent streams and any associated Natural Resource District or floodplain areas. Acreage of the Natural Resource District or floodplain areas should be provided.

☐ Non-tidal wetlands and any associated floodplain areas and/or Natural Resource District areas. Acreage of these areas should be provided.

☐ Slopes greater than 15 % and less than 25 % shaded and any associated Natural Resource District areas identified. Acreage of the Natural Resource District areas should be provided.

☐ Slopes greater than 25 % cross-hatched and any associated Natural Resource District areas identified. Acreage of the Natural Resource District areas should be provided.

☐ Limits of the Harford County Chesapeake Bay Critical Area Overlay District and any associated natural features and/or required buffers.

**2. Forest Survey Map** - All of items listed in section C should be displayed on the Forest Survey Map. The items in section D should be included on the Forest Stand Map if they are displayed on the Environmental Features Map. The items in section E will be displayed if they are applicable to the site.

#### Section C

☐ The name and address of the individual or firm preparing the FSD.

☐ Seal and signature of licensed forester, landscape architect as applicable.

☐ Date of drawing.

☐ Property boundaries.

☐ North arrow.

☐ Net Tract Area in acres.

#### Section D

☐ Perennial and intermittent streams.

☐ Non-tidal wetlands and any associated floodplain areas.

☐ Limits of the Harford County Chesapeake Bay Critical Area Overlay District including any required buffers.

#### Section E

☐ Forested and unforested areas.

☐ Historic sites.

☐ Locations of the sample plot sites. These locations should be represented on the map by dots. Each dot should also be numbered.



\_\_\_ Individual trees over 24" diameter at breast height (DBH). These trees should be labeled on the map and identified by scientific (Latin) name and common name.

\_\_\_ Rare, threatened and endangered trees, shrubs, plant and animal species, communities and habitat areas; critical habitats. These areas should be labeled on the map and identified by scientific (Latin) name and common name.

\_\_\_ Trees designated as national, state or county champions and/or trees which have a DBH of 75% of a designated champion. These trees should be labeled on the map and identified by scientific (Latin) name and common name.

\_\_\_ Forest stands extending off-site. Tree lines should be delineated a minimum of 100' off site to show the general size and area of these stands.

### 3. Plot Sampling Data Form

\_\_\_ The Plot Sampling Data Form is a prefabricated form to be used in the field. The data on this form should represent the features surveyed within each numbered sample plot.

### 4. Stand Summary Form

\_\_\_ This form should also be prefabricated. The purpose of the Stand Summary Sheet is to develop a more homogenous characterization of each forest stand based on the data gathered from the sample plots.

### 5. Narrative Statement of Stand Condition

\_\_\_ The Narrative should be a written report which verbally explains the significant environmental aspects of each forest stand as outlined in the Harford County Forest Stand Delineation Guidelines. There should be a narrative statement for each forest stand on-site.

### 6. Synopsis

\_\_\_ The Synopsis is a verbal analysis of the forested areas on-site. The Synopsis should summarize the overall condition of the forested areas on-site as outlined in the Harford County Forest Stand Delineation Guidelines. It should also give an overview of the areas that may be retained, afforested or reforested.

## **Appendices**

## **APPENDIX A. Forest Conservation Ordinance No. 91-31**

### **Approved Professional**

Based on Section 267-30.4(B) and 267-30.5(A) of the Harford County Forest Conservation Ordinance.

An individual may be determined to be qualified as an approved professional if the individual:

1. Possesses a four-year degree in the natural resources sciences (eg. biology, botany, ecology, etc.), natural resource management (eg. forestry, wildlife management, etc.), landscape planning or environmental planning; and
2. Has the following:
  - A. two years of professional experience in natural resources science, natural resource management, landscape planning or environmental planning, or its equivalent as determined by the Department, or
  - B. a graduate degree in any of the professional areas listed in A. and one year of professional experience; and
3. Has the ability to meet the obligations and requirements for the preparation of complete and accurate Forest Stand Delineations and Forest Conservation Plans as specified in the guidelines prepared by the Department of Planning and Zoning.

In order to become listed as an approved professional for the purposes of this Ordinance, an individual must submit the following for review and approval by the Department:

1. a complete resume listing the educational background and work experience of the individual requesting qualification; and
2. an example of an FSD and/or FCP prepared by the individual.

The Department of Planning and Zoning will review these materials within 30 days and notify the individual of their qualification as an approved professional as appropriate. Any individual anticipating submitting plans as an "approved professional" must be determined to be qualified prior to submitting plans for review under the Harford County Forest Conservation Ordinance.

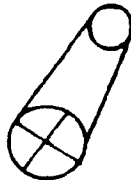
These criteria are applicable as of 1/1/92 and may be subject to further change as the Department proceeds with implementation of the Ordinance, or the State requires changes in the County's Ordinance under the State Forest Protection Act of 1991.

## Appendix B.1. Techniques for Forest Structure Data Collection

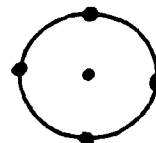
To measure canopy coverage, herbaceous coverage, dead and downed woody material present and exotic species, it will be necessary to sample in the following way:

- 1) Construct a sampling tube from a paper towel or toilet paper roll. Attach wires or string on one end of the tube in the configuration of a cross with four evenly spaced openings (see (a)).
- 2) Select 1 random sampling point within each forest stand. To do this, construct an circular sampling plot of 1/10 acre. Take samples from 4 points around the circle and one within the circle (see (b)).
- 3) Walk to each sample point and look through the sampling tube at each sample point.
  - a) For canopy coverage, record "yes" or "no" for green seen through the tube when pointed up. (Tube must be held vertically)
  - b) For herbaceous coverage, record "yes" or "no" for green seen through the tube when pointed down. (Tube must be held vertically)
  - c) For dead and down woody material, record "yes" or "no" for any root wads, logs, downed limbs, or bark seen through the tube. (Tube must be held vertically)
  - d) For exotic or invasive species, record "yes" or "no" for any of these species seen through the tube. (Tube must be held vertically).
- 4) Calculate the percentage of sample points at each sample site which were answered by "yes". Use the above information and additional information provided in the forest stand summary sheet to calculate the forest structure value to be assigned to the site for each individual parameter.
- 5) Count number of shrubs found within a 1/100 acre plot. Shrubs can be most easily counted if the central stem can be identified.

a.



b.



(for more information see: James, F.C. and Shugart, H.H. 1970. A Quantitative Method of Habitat Description. Audubon Field Notes, 24, 727-36.)

## Appendix B.2.

## Forest Structure Analysis

The following parameters will be measured and evaluated at each site. Each parameter at each sample site will be given a value of 3, 2, 1, or 0. Three represents the most valuable structure and 0 the least valuable. Upon completion of the sampling, the person preparing the FSD will calculate the forest structure value for each stand:

To determine the total habitat value use the following scale:

Range of total habitat numbers from samples taken April - October:

15-21	Priority forest structure
7-14	Good forest structure
0-6	Poor forest structure

In the winter and late fall, from November - March, only numbers 1, 3, 4, 5, 7, can be measured. During that time, the range of total habitat numbers will be:

11-15	Priority forest structure
6-10	Good structure
0-5	Poor forest structure

1. Percent Canopy Closure (see Appendix B.1 for sampling technique)		5. Size Class of Dominant Trees <sup>1</sup>	
70% - 100%	3	Greater than 20"	3
40% - 69%	2	7" - 19.9"	2
10% - 39%	1	3" - 6.9"	1
0% - 9%	0	Less than 3"	0
2. Number of Shrubs/1/100 acre (see Appendix B.1 for sampling technique)		6. Percent Herbaceous Coverage (Grasses and ferns; see Appendix B.1 for sampling technique)	
6 or more	3	75% - 100%	3
4 - 5	2	25% - 74%	2
2 - 4	1	5% - 24%	1
0 - 1	0	0% - 4%	0
3. Number of Dead Trees/plot <sup>1</sup>		7. Number of Tree Species /plot <sup>1</sup>	
3 or more	3	6 or more	3
2	2	4 - 5	2
1	1	2 - 4	1
0	0	0 - 1	0
4. Percent of Dead and Downed Woody Material Present (see Appendix B.1)		<p>These values are based on 1/10 acre plot sample If alternative plot sample sizes are used, these values are not be directly applicable.</p>	
15% - 100%	3		
5 - 14	2		
2 - 4	1		
0 - 1	0		

<sup>1</sup> Data included in Forest Stand Summary Form (See Figure 1.1).

**Appendix C. Prime Agricultural Soils  
for  
Harford County, Maryland**

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The following soil mapping units are considered to be prime agricultural soils by the Harford County Soil Conservation District. As part of a Forest Stand Delineation, prime agricultural soils must be highlighted on the Environmental Features Map.

- CgB2 - CHESTER GRAVELY SILT LOAM, 3 TO 8 PERCENT SLOPES,  
MODERATELY ERODED.
- CcA - CHESTER SILT LOAM, 0 TO 3 PERCENT SLOPES.
- Ccb2 - CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY  
ERODED.
- ChB2 - CHILLUM SILT LOAM, 2 TO 5 PERCENT SLOPES, MODERATELY  
ERODED.
- Cu - CODORUS SILT LOAM.
- Cv - COMUS SILT LOAM.
- DcA - DELANCO SILT LOAM, 0 TO 3 PERCENT SLOPES.
- DcB - DELANCO SILT LOAM 3 TO 8 PERCENT SLOPES.
- EhB2 - ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY  
ERODED.
- EsA - ELSINBORO LOAM, 0 TO 2 PERCENT SLOPES.
- EsB2 - ELSINBORO LOAM, 2 TO 5 PERCENT SLOPES, MODERATELY ERODED.
- GgB2 - GLENELG GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY  
ERODED.
- GnA - GLENNVILLE SILT LOAM, 0 TO 3 PERCENT SLOPES.
- GnB - GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES.
- LeB2 - LEGORE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY  
ERODED.
- MbB2 - MANOR LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED.
- MkA - MATAPEAKE SILT LOAM, 0 TO 2 PERCENT SLOPES.
- MkB - MATAPEAKE SILT LOAM, 2 TO 5 PERCENT SLOPES.

MIA - MATTAPEX SILT LOAM, 0 TO 2 PERCENT SLOPES.  
MIB - MATTAPEX SILT LOAM, 2 TO 5 PERCENT SLOPES.  
MsA - MONTALTO SILT LOAM, 0 TO 3 PERCENT SLOPES.  
MsB2 - MONTALTO SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY  
ERODED.  
NeA - NESHAMINY SILT LOAM, 0 TO 3 PERCENT SLOPES.  
NeB2 - NESHAMINY SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY  
ERODED.  
SIB2 - SASSAFRAS LOAM, 2 TO 5 PERCENT SLOPES, MODERATELY ERODED.  
ShB2 - SASSAFRASS SANDY LOAM, 2 TO 5 PERCENT SLOPES, MODERATELY  
ERODED.  
WhB - WHITEFORD SILT LOAM, 3 TO 8 PERCENT SLOPES.  
WoB - WOODSTOWN LOAM, 0 TO 5 PERCENT SLOPES.

## Appendix D



## Attribute report for active ID 5

ID	TAGV1	TAGV2
3	wooded	04077245
4	wooded	04058356
10	wooded	04007921
11	wooded	04029747
14	wooded	04077237
16	wooded	04073673
20	wooded	04073681
21	wooded	04055225
22	wooded	04073681
24	wooded	04056876
30	wooded	04069145
31	wooded	04020588
32	wooded	04053176
34	wooded	04002784
37	wooded	04030214
39	wooded	04063627
40	wooded	04052056
41	wooded	04045858
45	wooded	04017706
47	wooded	24-P.329
54	wooded	04072316
55	wooded	04061438
58	wooded	04060245
60	wooded	04060253
64	wooded	04052021
67	wooded	04011279
69	wooded	04052048
70	wooded	04008391
71	wooded	N.T.
73	wooded	04017102
74	wooded	N.T.
77	wooded	04075684
78	wooded	N.T.
80	wooded	04068165
83	wooded	N.T.
84	wooded	04064429
87	wooded	04056329
88	wooded	04062175
90	wooded	04019563
91	wooded	04051971
92	wooded	04051998
93	wooded	04051696
97	wooded	04008669
98	wooded	04072723
101	wooded	04072723
103	wooded	04051971
106	wooded	04049454
107	wooded	04060253
108	wooded	04083792
111	wooded	04083784
112	wooded	04083792
115	wooded	04070445
116	wooded	04062191
117	wooded	04066758

120	wooded	N.T.
121	wooded	04047214
124	wooded	04044711
126	wooded	04065719
128	wooded	04072723
134	wooded	04003462
136	wooded	04065328
137	wooded	04003462
139	wooded	04040627
140	wooded	04005171
143	wooded	04008669
145	wooded	04005171
147	wooded	04056086
152	wooded	04080858
153	wooded	04080831
158	wooded	04038924
160	wooded	04038924
162	wooded	04083148
165	wooded	04082567
166	wooded	04038940
167	wooded	04001621
170	wooded	04021363
179	wooded	04024303
182	wooded	04002776
186	wooded	04038835
187	wooded	04019741
190	wooded	04011805
193	wooded	04075196
195	wooded	04055144
201	wooded	04000390
203	wooded	04000390
204	wooded	N.T.
207	wooded	04025202
208	wooded	04056027
209	wooded	04072847
214	wooded	04003462
218	wooded	04019245
221	wooded	04038762
222	wooded	04019245
225	wooded	04054113
227	wooded	04066960
229	wooded	04018362
232	wooded	N.T.
236	wooded	04009754
238	wooded	24-P.321
239	wooded	04068572
241	wooded	04068696
245	wooded	04068602
247	wooded	04064593
249	wooded	04064593
252	wooded	04068718
254	wooded	04009746
255	wooded	N.T.
256	wooded	04009746
258	wooded	04068572
261	wooded	04068653
263	wooded	24-P.321
268	wooded	04005767
269	wooded	04069609
315	wooded	04045424

320 wooded	04058364
332 wooded	04042247
342 wooded	04073681
345 wooded	04019393
348 wooded	04045424
367 wooded	04034058
368 wooded	04028929
384 wooded	04077318
385 wooded	04077296
393 wooded	04058356
396 wooded	04081536
398 wooded	04028929
403 wooded	04077318
408 wooded	04077237
412 wooded	04077296
413 wooded	04077288
416 wooded	04077261
418 wooded	04077253
419 wooded	04077253
421 wooded	04077261
422 wooded	04077288
423 wooded	04077253
425 wooded	N.T.
430 wooded	04077091
433 wooded	04077229
434 wooded	N.T.
435 wooded	04078330
439 wooded	04024303
443 wooded	04077113
444 wooded	04077105
446 wooded	04077121
447 wooded	04002768
448 wooded	04045882
450 wooded	N.T.
451 wooded	04077083
453 wooded	04077083
462 wooded	04030206
467 wooded	04045866
468 wooded	04077083
470 wooded	04077067
477 wooded	04030192
478 wooded	04030206
480 wooded	04077148
488 wooded	04077075
492 wooded	04045866
496 wooded	04012275
511 wooded	04056094
515 wooded	04077059
517 wooded	04077156
534 wooded	04073673
535 wooded	04029747
539 wooded	04030125
541 wooded	04002652
561 wooded	04047990
562 wooded	04050010
575 wooded	04066073
585 wooded	04004795
586 wooded	04019717
601 wooded	04069145
602 wooded	04000641

623 wooded	04082664
642 wooded	N.T.
684 wooded	N.T.
686 wooded	N.T.
705 wooded	04066936
711 wooded	04026764
717 wooded	04019717
718 wooded	04066073
720 wooded	04067797
728 wooded	04019709
729 wooded	04048105
733 wooded	04026020
749 wooded	04075544
761 wooded	04075544
764 wooded	04075544
765 wooded	04009746
788 wooded	04009746
815 wooded	04009746
821 wooded	04085779
829 wooded	04085760
832 wooded	04018362
839 wooded	04085779
843 wooded	04060253
845 wooded	04040244
858 wooded	04008804
874 wooded	04009746
877 wooded	04083792
881 wooded	04018362
918 wooded	04021851
920 wooded	04021851
921 wooded	04073991
942 wooded	04048776
943 wooded	04037588
946 wooded	04034333
948 wooded	04070445
949 wooded	04070445
950 wooded	04037286
958 wooded	04006011
959 wooded	04086287
960 wooded	04047265
965 wooded	04071395
970 wooded	04006011
971 wooded	04006011
977 wooded	04018710
979 wooded	04012445
986 wooded	04086287
988 wooded	04019377
997 wooded	04019210
1002 wooded	04033809
1003 wooded	04067746
1004 wooded	04049004
1009 wooded	04007506
1011 wooded	04006011
1017 wooded	04062175
1019 wooded	04061411
1020 wooded	04038533
1026 wooded	04072413
1028 wooded	04068181
1030 wooded	04010337
1034 wooded	04011805

1035 wooded	04001893
1040 wooded	04052072
1042 wooded	04010337
1052 wooded	04052064
1054 wooded	04052080
1072 wooded	04013271
1074 wooded	04052072
1076 wooded	04081595
1084 wooded	04055101
1087 wooded	04088530
1089 wooded	04086287
1093 wooded	04068653
1107 wooded	04084691
1111 wooded	04081609
1125 wooded	04052013
1129 wooded	N.T.
1131 wooded	04052021
1134 wooded	04052005
1138 wooded	04052021
1151 wooded	04052048
1156 wooded	04068572
1161 wooded	04025202
1183 wooded	04087550
1219 wooded	04072766
1221 wooded	04038835
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1244 wooded	04056019
1245 wooded	04030303
1246 wooded	04076664
1248 wooded	04082567
1251 wooded	04038851
1259 wooded	N.T.
1262 wooded	04038835
1264 wooded	N.T.
1266 wooded	04038835
1268 wooded	04038835
1272 wooded	04038851
1274 wooded	04030303
1275 wooded	04076672
1282 wooded	04038835
1283 wooded	04038800
1285 wooded	04076664
1290 wooded	04083105
1291 wooded	04020529
1292 wooded	04076656
1295 wooded	04087089
1300 wooded	04080513
1303 wooded	04076664
1306 wooded	04038835
1308 wooded	04038835
1315 wooded	04076656
1318 wooded	04080513
1319 wooded	04036123
1320 wooded	04036034
1325 wooded	04083695
1330 wooded	04083121
1343 wooded	04019245
1344 wooded	04076672

1345	wooded	04038916
1347	wooded	04038916
1348	wooded	04081285
1350	wooded	04081285
1351	wooded	04036123
1357	wooded	04080831
1388	wooded	04003462
1389	wooded	04038924
1405	wooded	04038894
1424	wooded	04075676
1430	wooded	04058178
1432	wooded	04075676
1435	wooded	04074645
1436	wooded	04058178
1439	wooded	04003462
1440	wooded	04038924
1446	wooded	04069609
1451	wooded	04074645
1456	wooded	04038835
1458	wooded	04038835
1459	wooded	04085779
1460	wooded	04038835

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## Appendix E

account	owner_name_1	owner_address_1	owner_city	owner_1	owner_1
4081609	ACREE SHERMAN THOMAS	3911 A EATON DRIVE	JARRETSVILLE	MD	21084
4000390	AKERS JAMES L & WF	1443 ROCK RIDGE RD	JARRETSVILLE	MD	21084
4037588	ALLEN RICHARD L	3910 BOXWOOD ROAD	JARRETSVILLE	MD	21084
4077253	AMATO LEONARD V SR	1944 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4085760	AMOS JONATHAN NEIL	218 S MAIN STREET	SHREWSBURY	PA	17361
4077067	ANDERSON HENRY DAVID	2710 CLAYTON DRIVE	JOPPA	MD	21085
4072413	BALL JOHN G JR	1424 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4003462	BAPTIST WOMENS MISSIONARY	10255 OLD COLUMBIA ROAD	COLUMBIA	MD	21046
4066758	BARLOW DARIUS D	1401 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4005171	BERRY GEORGE HENRY SR	1270 WEST JARRETSVILLE ROAD	FOREST HILL	MD	21050
4077318	BLACK LEONARD R	1952 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4006011	BLEVINS JOHN H & WF	4050 PADDOCK ROAD	DARLINGTON	MD	21034
04086287	BOARD OF EDUCATION	45 EAST GORDON STREET	BEL AIR	MD	21014
4075676	BORTMES GUY F	1347 CHROME HILL ROAD	JARRETSVILLE	MD	21084
40008391	BOYCE JACK R	1360 NORTH BEND ROAD	JARRETSVILLE	MD	21084
04007506	BRENNAN JOHN T & WF	1426 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
40007921	BROOMFIELD CLARENCE A	1917 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
04000641	BROWN JAMES M	4084 FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
04052080	BUDZINSKI STANLEY S	3913 EATON DRIVE	JARRETSVILLE	MD	21084
04008669	BULLOCK ANN CAMPBELL &	5136 EVANS STREET	OMAHA	NE	68104
40008804	BURK DIANE SCHULTZ ET AL	4033 BORN ROAD	JARRETSVILLE	MD	21084
4049454	BURK DONALD G	4033 BORN ROAD	JARRETSVILLE	MD	21084
4030206	BUSHMAN STEPHEN S	1907 FOREST GUARD COURT	JARRETSVILLE	MD	21084
4009754	CAIRNES EVELYN HESS	1670 JARRETSVILLE ROAD	JARRETSVILLE	MD	21084
4009746	CAIRNES GEORGE WILSON	PO BOX 158	JARRETSVILLE	MD	21084
04052056	CANAPP THOMAS E	3908 EATON DRIVE	JARRETSVILLE	MD	21084
04010337	CARIDI ANTONIO	1418 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
40001621	CATONZARO ANTHONY A	1416 KNOPP ROAD	JARRETSVILLE	MD	21084
4077245	CAWDELL TERRY J	1953 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4011279	CHILDERS WORTHINGTON E	1370 NORTH BEND ROAD	JARRETSVILLE	MD	21084
4029747	CLAYPOOLE ALBERT M	1921 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4030214	CLINES STEVEN P	1915 FOREST GUARD COURT	JARRETSVILLE	MD	21084
4011805	COFFMAN RICHARD K	3959 OLD FEDERAL HILL RD	JARRETSVILLE	MD	21084
40002784	COLLINS WILLIAM H	1913 FOREST GUARD COURT	JARRETSVILLE	MD	21084
4038835	CONNOR EDWARD J	1444 KNOPP ROAD	JARRETSVILLE	MD	21084
4077059	CREAGER ROBERT L	1925 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4077075	CREAGER ROBERT M	1935 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4013271	CROVO HOWARD CHARLES	6111 GLEN OAK AVENUE	BALTIMORE	MD	21214
4077156	DI FERDINANDO JOSEPH JR	4050 GILFORD COURT	JARRETSVILLE	MD	21084
40084691	DONOHUE MICHAEL F	3015 PUTTY HILL AVENUE	BALTIMORE	MD	21234
04017102	DORSEY RICHARD L	1409 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4017706	DUNNIGAN JOHN L & WF	1413 DALEWOOD DRIVE	JARRETSVILLE	MD	21084



4082567	ELISNER ERIC A	1417 ROCK RIDGE ROAD	JARRETTVILLE	MD	21084
4077296	ENDE JOSEPH H	1950 YOUNGSTON ROAD	JARRETTVILLE	MD	21084
4018710	ENDE LEROY H JR	3904 BOXWOOD ROAD	JARRETTVILLE	MD	21084
4083695	ENGLAND JAMES A	1301 NORTH BEND ROAD	JARRETTVILLE	MD	21084
4019210	EVANS ROBERT W	1430 DALEWOOD DRIVE	JARRETTVILLE	MD	21084
4019245	EVERETT RICHARD E & WF	1406 CHROME HILL RD	JARRETTVILLE	MD	21084
4019377	FABER JOHN T & WF	1403 DALEWOOD DR	JARRETTVILLE	MD	21084
4019393	FALANGA RONALD L	2045 NELSON MILL ROAD	JARRETTVILLE	MD	21084
4019563	FASSIO ANTON J & WF	412 WAMPLER ROAD	BALTIMORE	MD	21220
4088530	FEDERAL HILL ASSOCIATES	SHAWAN PLACE	COCKEYSVILLE	MD	21030
4019709	FELKER RUTH A	521 FREYS ROAD	EDGEWOOD	MD	21040
4019717	FELKER RUTH A	521 FREYS ROAD	EDGEWOOD	MD	21040
4077148	FITZBUGH HARRY TAYLOR III	4048 GILFORD COURT	JARRETTVILLE	MD	21084
4020529	FLORIE WILLIAM OTTO	1413 ROCK RIDGE ROAD	JARRETTVILLE	MD	21084
4020588	FOARD MARGARET P ET AL	4136 FEDERAL HILL ROAD	JARRETTVILLE	MD	21084

4069145 FREDERICH VICTORIA E	2335 MC COMAS ROAD	WHITE HALL	MD	21161
4021851 GARNER BERNARD S & WF	1442 NORTH BEND RD	JARRETSVILLE	MD	21084
4064429 GOUTOS RICHARD J	1408 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4081595 GRAN CARL V	PO BOX 298	JARRETSVILLE	MD	21084
4025202 GREENE WILLIAM F & WF	1467 ROCK RIDGE RD	JARRETSVILLE	MD	21084
4048105 GREEN JOHN L	1819 TWIN OAK ROAD	JARRETSVILLE	MD	21084
4026020 GRIMMEL FAMILY L P	3857 FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4002776 GUCKERT SCOTT J	1911 FOREST GUARD COURT	JARRETSVILLE	MD	21084
4026764 HALL EFFIE ET AL	3103 LEIGHTON AVENUE	BALTIMORE	MD	21215
4071395 HARRIS KENNETH E	3906 BOXWOOD ROAD	JARRETSVILLE	MD	21084
4052048 HEERE-BEYER WILLIAM J	1372 N BEND ROAD	JARRETSVILLE	MD	21084
4028929 HERBERT WILLIAM DAVID	2016 NELSON MILL ROAD	JARRETSVILLE	MD	21084
4080858 HERMANN MARK S	14700 CARROLL ROAD	PHOENIX	MD	21131
4030125 HILL WILLIAM ROLAND III	1900 DEVOTE COURT	JARRETSVILLE	MD	21084
4024303 HIPLEY RUTHANNA	1544 JARRETSVILLE ROAD	JARRETSVILLE	MD	21084
4030303 HOGARTH EDWARD L JR	3861 OLD FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4072316 HOLLINGSHEAD JOHN L	1406 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4033609 HOSKINS ROBERT W	3902 BOXWOOD ROAD	JARRETSVILLE	MD	21084
4034333 HUFNAGEL JOHN W	3908 BOXWOOD RD	JARRETSVILLE	MD	21084
4004795 HUFNAGLE DOUGLAS P	1703 CROSSGATE ROAD	JARRETSVILLE	MD	21084
4077083 INCE WALTER H JR	1937 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4083105 IPES J BRUCE	3956 RUSH ROAD	JARRETSVILLE	MD	21084
4012445 JACKSON GARY O	1432 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4083148 JAMES JOSEPH ANDERSON	6223 CATALPHA ROAD	BALTIMORE	MD	21214
4036034 JONES DEWEY L & WF	1400 CHROME HILL RD	JARRETSVILLE	MD	21084
4036123 JONES EMMA ET AL	1400 CHROME HILL ROAD	JARRETSVILLE	MD	21084
4037286 KELLY CHARLES W SR	3913 BOXWOOD RD	JARRETSVILLE	MD	21084
4055101 KIDD ROBERT L JR	3957 OLD FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4076664 KNOPP CHARLES HERBERT	3815 OLD FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4081285 KNOPP CHARLES RONNIE	1343 KNOPP ROAD	JARRETSVILLE	MD	21084
4038916 KNOPP HARVEY W SR	1363 KNOPP ROAD	JARRETSVILLE	MD	21084
4076672 KNOPP JAMES H	1408 CHROME HILL ROAD	JARRETSVILLE	MD	21084
4038762 KNOPP JAMES H & WF	1408 CHROME HILL RD	JARRETSVILLE	MD	21084
4038851 KNOPP LILLIE MAE	3823 OLD FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4038800 KNOPP MARGARET ELEANOR	1420 KNOPP ROAD	JARRETSVILLE	MD	21084
4038894 KNOPP MARTIN L	1363 KNOPP ROAD	JARRETSVILLE	MD	21084
4038924 KNOPP MARTIN L &	1363 KNOPP ROAD	JARRETSVILLE	MD	21084
4076656 KNOPP PAULINE C	1363 KNOPP ROAD	JARRETSVILLE	MD	21084
4038940 KNOPP SCOTT A	3912 RUSH ROAD	JARRETSVILLE	MD	21084
4034058 KRESS CARL EDWARD JR	2013 NELSON MILL ROAD	JARRETSVILLE	MD	21084
4078330 KRESS CARL EDWARD JR	2013 NELSON MILL ROAD	JARRETSVILLE	MD	21084
4040244 LAANE ARNO UDO & WF	4063 BORN ROAD	JARRETSVILLE	MD	21084
4040627 LANGREHR HARRY M	4948 SHEET AIR ROAD	BALDWIN	MD	21013
4077261 LASHOF MARK THOMAS	1022 SEAMOUNT ROAD	BEL AIR	MD	21014
4077091 LOGAN DAVID W	4040 GILFORD COURT	JARRETSVILLE	MD	21084

4042247	LOHMEYER JOHN T & WF	2123 NELSON MILL RD	JARRETSVILLE	MD	21084
4044771	MATTHEWS JOSEPH ALLEN	P O BOX 208	STONEVILLE	NC	27048
4045424	MC FADDEEN WILLIAM J & WF	2057 NELSON MILL ROAD	JARRETSVILLE	MD	21084
4045858	MC MAHON ROBERT F	3911 BUCKTHORN COURT	JARRETSVILLE	MD	21084
4045866	MC MILLAN H F JR & WF	1951 NELSON MILL RD	JARRETSVILLE	MD	21084
4045882	MC MILLAN LEWIS M &	1953 NELSON MILL RD	JARRETSVILLE	MD	21084
4021363	MELLOR JOHN R	1356 KNOFF ROAD	JARRETSVILLE	MD	21084
4077121	MEZZANOTTE FRANK	4046 GILFORD COURT	JARRETSVILLE	MD	21084
4081536	MILLER RONALD D	2015 NELSON MILL ROAD	JARRETSVILLE	MD	21084
4047265	MINTON JAMES E	3987 OLD FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4047214	MINTON RALPH	PO BOX 57	JARRETSVILLE	MD	21084
4052064	MIOTKE THOMAS M	3910 EATON DRIVE	JARRETSVILLE	MD	21084
4082664	MORAN DONALD J	3747 FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4047990	MORAN DONALD J & WF	3747 FEDERAL HILL RD	JARRETSVILLE	MD	21084
4018362	MURRAY ETHEL	5723 HARFORD ROAD	BALTIMORE	MD	21214

4050010	NORTH HARTFORD SWIM CLUB INC	BOX 204	JARRETSVILLE	MD	21084
4051696	OVER CHARLES W JR & WF	1364 ROCK RIDGE RD	JARRETSVILLE	MD	21084
4051998	PANZER JOHN J	1435 NORTH BEND ROAD	JARRETSVILLE	MD	21084
4087550	PANZER JOHN J	1435 NORTH BEND ROAD	JARRETSVILLE	MD	21084
4051971	PANZER JOHN J & WF	1435 NORTH BEND ROAD	JARRETSVILLE	MD	21084
4052013	PANZER JOHN J JR	1370 BUCKTHORN DRIVE	JARRETSVILLE	MD	21084
4077229	PARDO BRUCE R	PO BOX 299	JARRETSVILLE	MD	21084
4001893	PARRISH SCOTT M	1420 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4083792	PEDDICORD CHARLES E JR	3437 SANTEE ROAD	BALTIMORE	MD	21236
4053176	PHILLIPS JAMES A JR	1919 MT MOREB ROAD	STREET	MD	21154
4012275	POEHLMAN JAMES D	1903 FOREST GUARD COURT	JARRETSVILLE	MD	21084
4054113	POTEET GEORGE C	1357 CHROME HILL ROAD	JARRETSVILLE	MD	21084
4049004	POWERS JOHN L JR	1428 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4052021	PROCHASKA JOSEPH T	PO BOX 458	JARRETSVILLE	MD	21084
4005767	PULLEN RUTH A	1357 CHROME HILL ROAD	JARRETSVILLE	MD	21084
4055144	RAMSBURG CAROLYN L & HUS	3985 OLD FEDERAL HILL RD	JARRETSVILLE	MD	21084
4055225	RANDOM PAUL F & WF	2041 NELSON MILL RD	JARRETSVILLE	MD	21084
4052005	REID TRUITT	1371 BUCKTHORN DRIVE	JARRETSVILLE	MD	21084
4056019	RHADS JOHN N	1789 W 113TH AVENUE	WESTMINSTER	CO	80234
4056027	RHADS JOHN N	1789 W 113TH AVENUE	WESTMINSTER	CO	80234
4056086	RICE GLADYS ET AL	1407 ROCK RIDGE ROAD	JARRETSVILLE	MD	21084
4049609	RIGDON GEORGE B ET AL	1320 RIGDON ROAD	JARRETSVILLE	MD	21084
4056329	RIGNEY PAUL R	1412 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4019741	ROBINSON DONALD F JR	3965 OLD FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4087070	ROBINSON EDWARD M	1431 KNOPP ROAD	JARRETSVILLE	MD	21084
4087089	ROBINSON EDWARD M	1431 KNOPP ROAD	JARRETSVILLE	MD	21084
4056876	ROBINSON ROLAND L ET AL	14906 MIDWOOD AVENUE	BALTIMORE	MD	21212
4083121	RUSH RONALD SR	3942 RUSH ROAD	JARRETSVILLE	MD	21084
4058178	RUTHERFORD DANIEL M & WF	1335 CHROME HILL RD	JARRETSVILLE	MD	21084
4058356	RUTLEDGE W WILEY	2219 NELSON MILL ROAD	JARRETSVILLE	MD	21084
4058364	RUTLEDGE W WILEY	2219 NELSON MILL ROAD	JARRETSVILLE	MD	21084
4080831	SANDERS DONALD J	1261 ROCK RIDGE ROAD	JARRETSVILLE	MD	21084
4077105	SCHERER THOMAS J	4042 GILFORD COURT	JARRETSVILLE	MD	21084
4083784	SCHOEPFLIN F LEE	4326 SILVER SPRING ROAD	PERRY HALL	MD	21128
4060245	SCHULTZ JAMES T ET AL	1403 BORN ROAD	JARRETSVILLE	MD	21084
4060253	SCHULTZ JAMES T ET AL	1403 BORN ROAD	JARRETSVILLE	MD	21084
4038533	SENES LAWRENCE R	1407 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4056094	SHAW IRENE M	14122 FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
4061411	SHEITLE KENNETH G & WF	1405 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4061438	SHEV CHARLES L & WF	1404 DALEWOOD DRIVE	JARRETSVILLE	MD	21084
4077237	STEDLECKI STANLEY R	1949 YOUNGSTON ROAD	JARRETSVILLE	MD	21084
4048776	STIGMORELLI LAWRENCE W	3912 BOXWOOD ROAD	JARRETSVILLE	MD	21084
4002652	SIMPSON JOHN R III	4012 SECURITY LANE	JARRETSVILLE	MD	21084
4062175	SLADE ARTHUR E & WF	1511 NORTH BEND RD	JARRETSVILLE	MD	21084
4062191	SLADE CARROLL LEE & WF	4200 FEDERAL HILL RD	STREET	MD	21154

14074645	SLAUGHTER JAMES C	1329	CHROME HILL ROAD	JARRETSVILLE	MD	21084
14085779	SMITH FREDERICK NELSON	318	BYNUM RIDGE ROAD	FOREST HILL	MD	21050
14063627	SPANGLER WILBUR E JR	13915	BUCKTHORN COURT	JARRETSVILLE	MD	21084
14064593	SPROUSE ELVIN H & WF	1552	W JARRETSVILLE RD	JARRETSVILLE	MD	21084
14065328	STATE OF MARYLAND		STATE OFFICE BUILDING	ANNAPOLIS,	MD	21400
14065719	STEVENS JAMES L & WF	1309	NORTH BEND RD	JARRETSVILLE	MD	21084
14066073	STOPPER JAMES H JR & WF	11	LARK MEADOW COURT	BALTIMORE	MD	21236
14066936	SMAN J OSCAR ET AL	3619	CONOWINGO ROAD	STREET	MD	21154
14066960	SWEETING WILSON S & WF		PO BOX 535	JARRETSVILLE	MD	21084
14080513	SWIFT WILLIAM F JR	1415	KNOPP ROAD	JARRETSVILLE	MD	21084
14067746	THACKER CAROL A	1432	NORTH BEND ROAD	JARRETSVILLE	MD	21084
04067797	THOMAS ELIZABETH ET AL	14090	FEDERAL HILL RD	JARRETSVILLE	MD	21084
14068165	THOMPSON DURWARD C JR	1400	DALEWOOD DR	JARRETSVILLE	MD	21084
14068572	TITTLE CLARENCE B	3850	OLD FEDERAL HILL ROAD	JARRETSVILLE	MD	21084
04068602	TITTLE GEORGE W	3836	OLD FEDERAL HILL RD	JARRETSVILLE	MD	21084

406653	TITTLE RICHARD H	3846 OLD FEDERAL HILL ROAD	JARRETTVILLE	MD	21084
406696	TITTLE WILLIAM F JR	3839 OLD FEDERAL HILL ROAD	JARRETTVILLE	MD	21084
406818	TITTLE WILLIAM F JR	3839 OLD FEDERAL HILL RD	JARRETTVILLE	MD	21084
400268	VALLE RALPH G	1909 FOREST GUARD COURT	JARRETTVILLE	MD	21084
407045	VARVARO JOSEPH A	1751 TWIN OAK ROAD	JARRETTVILLE	MD	21084
407713	VINOPAL J HOWARD	4044 GILFORD COURT	JARRETTVILLE	MD	21084
403092	WALL HUGH BRANTLEY JR	1905 FOREST GUARD COURT	JARRETTVILLE	MD	21084
4072723	WESTON JAMES ROSS JR	1339 NORTH BEND ROAD	JARRETTVILLE	MD	21084
407266	WHICHARD ROBERT LEE & WIF	1425 ROCKRIDGE RD	JARRETTVILLE	MD	21084
4072847	WHITE JAMES F JR & MARY	BOX 97	JARRETTVILLE	MD	21084
4068181	WILBERGER TERRY HENRY SR	1422 DALEWOOD DRIVE	JARRETTVILLE	MD	21084
4052072	WILSON CHARLES R SR	1022 SEAMOUNT ROAD	BEL AIR	MD	21014
4073681	WILSON LOUIS TIVIS & WIF	4028 SECURITY LANE	JARRETTVILLE	MD	21084
4073673	WILSON LOUIS T JR	4032 SECURITY LANE	JARRETTVILLE	MD	21084
4077288	WIRTANEN LOUIS MICHAEL	1948 YOUNGSTON ROAD	JARRETTVILLE	MD	21084
4073991	WISCHHUSEN RICHARD P JR	1434 NORTH BEND RD	JARRETTVILLE	MD	21084
4075196	WYATT EVERETT R & WIF	3971 OLD FEDERAL HILL RD	JARRETTVILLE	MD	21084
4075544	ZABKOWSKI BRONISLAUS J	1521 FALLSTON ROAD	FALLSTON	MD	21047
4075684	ZERHUSEN MICHAEL J	1402 DALEWOOD DRIVE	JARRETTVILLE	MD	21084

## Appendix F



## HARFORD COUNTY GOVERNMENT

Department of Planning and Zoning

**DRAFT**

DATE

LAND OWNER NAME  
LAND OWNER ADDRESS  
TOWN, STATE ZIP

RE: Forest Protection

Dear LAND OWNER NAME:

As Harford County citizens, we enjoy a living and working environment that is abundant in natural diversity. Of the natural features within the County, trees and forests are one of our most valuable natural resources. Trees and forests help stabilize soil and act as natural sponges to absorb rain water, filter out many pollutants and then slowly release the water into groundwater supplies. Trees and forests also provide aesthetics, food and habitat for wildlife, recreational opportunities, lumber for building and pulp wood for paper supplies, and help to improve air quality.

Harford County is currently 37% forestland which is equal to 107,556 acres. However, the Maryland Department of Natural Resources estimates that 40,000 acres of forestland were cleared between 1965 and 1985.

The Department of Planning and Zoning has identified your land as an important part of the forestry resources in Harford County for one of two reasons:

- \* your land as contains at least 50 acres of contiguous forestland; or
- \* the forested portion of your land is part of a contiguous 50 acre or greater tract of forestland, portions of which may be on your neighbor's property.

Protection of these large contiguous tracts of forestland are important to the ecological health of plant and wildlife communities as well as the overall character of the County.

Trees and forests are now protected in Harford County through the Harford County Forest Conservation Ordinance. The ordinance protects trees and forests through a regulatory process designed to integrate the retention and preservation of existing trees and forestland into the development process. But what about protecting trees and forests on lands that are not to be developed or will not be developed in the near future? There are a variety of non-regulatory tree and forest protection programs administered by the Federal Government, the State of Maryland and private organizations that allow a land owner to voluntarily protect and manage his or her forestland while still enjoying all of the benefits trees and forests provide.

If you are interested in learning more about protecting and managing your forestland through a non-regulatory program, please contact the Harford County Department of Planning and Zoning at extension 103.

Sincerely,

William G. Carroll  
Director of Planning



## Appendix G

MARYLAND  
TREE PLANTING LAWS AND PROGRAMS

STATE GOVERNMENT

Programs

Basic Tree Planting: Landowners having at least a quarter acre of available land can purchase tree seedlings of various species from the Forestry Division to plant for conservation purposes. Such conservation purposes include erosion control, wildlife habitat enhancement, afforestation, reforestation, windbreak establishment, etc. Additionally, selected species are chosen and packaged for specific purposes and are available to individuals or service organizations as wildlife packets, bay bundles, or environmental packets.

Forest Conservation and Management Program: The intent of this program is to preserve forest lands from alternate uses and conserve the resource using the principals of scientific forest management. Landowners having five or more contiguous forested acres who agree to adhere to a resource conservation plan for a minimum of 15 years sign a contract and receive a tax incentive in the form of frozen assessments (usually at the agricultural rate) on those forested acres for the 15 year period. Participating landowners who plant trees and increase their forest acreage can add those acres to their agreement one year after seedling establishment.

Green Shores Program: Initiated by the Governor in 1988, this program is designed to reduce non-point source pollutants by planting forest buffers along streams and the Bay. The program has three major elements. Grants are available to local governments to pay all costs associated with planting stock and establishment within 300 feet of water course on public land. In 1990, the Buffer Incentive Program was initiated to make direct payments of \$200/ac to private landowners to encourage them to plant forest buffers along their streams. The Chesapeake Bay School Reforestation Program, administered by local county Forest Conservancy District Boards, is an educational grant program that provides up to \$1500 per school to establish a native forest that has the potential to improve water quality, enhance wildlife habitat and demonstrate the benefits of forests and trees in

overall environmental protection. The Urban Forest Grant Program provides 50%/50% matching funds to local governments within the critical area to establish innovative forestry projects using new technologies and methods for achieving successful tree plantings in urban areas.

**Tree-Mendous Maryland Program:** The primary purpose of this program is to expand tree planting efforts by encouraging corporations, community groups, service organizations and individuals to invest in tree planting. Individuals can purchase trees in honor or in memory of friends or loved ones which are planted in memorial graves in the region where the honoree lives/had lived. Community groups can purchase trees for planting on public open spaces. Corporations and businesses can make a donation to the Governor's Cloverleaf Planting Program to provide for tree planting at all appropriate interchanges on State highways.

**State Conservation Reserve Program:** Patterned after the federal Conservation Reserve Program (CRP), Maryland's CRP is designed to complement the federal program by offering added incentives. Piggy-backed on the federal program, the State CRP offers \$20/acre for land in the critical area or adjacent to wetlands and waterways. An additional \$100/acre is available when the landowner chooses to plant tree seedlings.

**Woodland Incentive Program:** The purpose of this cost-share program is to provide non-industrial private woodland owners with financial assistance for tree planting, timber stand improvement and other forest management activities. Those eligible must own 10 to 500 contiguous wooded acres capable of producing 20 cubic feet of wood per acre per year; accept cost-share assistance not to exceed 50 percent of actual or fixed rate cost, whichever is less; not currently applying for or receiving federal cost-share for the same practice on the same acreage; manage their woodland according to a plan prepared or approved by a Licensed Forester and agree to limit cost-share funds to a maximum of \$5,000 each year or \$15,000 for a three-year accomplishment. Other conditions include the owner's commitment to at least 15 years of management and allow access to his property for periodic inspections.

**Reforestation and Timber Stand Improvement Tax Deduction (TAXMOD Program):** The intent of this program is to protect and enhance our forests as well as create an economic climate conducive to growing trees. Owners or lessees of between 10 and 500 acres of "commercial" forest land (capable of growing 20 cu ft of wood/year) may deduct double the direct costs associated with certified reforestation and timber stand improvement from their federal adjusted gross income for Maryland income tax purposes. Reforestation must result in at least 400 healthy seedlings or sprouts per acre. TSI includes thinning by mechanical or chemical means as well as pruning.

**Stripmine Reclamation Program:** The Maryland Bureau of Mines provides seedlings to coal mining companies to aid in site reclamation by returning striped areas to their previously forested condition.

## **LAWS**

**The Critical Area Laws** (NR 8-1801 through 8-1816): The law designates a 1,000 foot area from mean high tide around the Chesapeake Bay and its tributaries as the "Critical Area". The law requires local governments within the Critical Area to develop protection plans according to criteria developed by the Critical Area Commission and approved by the legislature. According to the criteria, all local protection plans require the replacement of forests lost to development through mitigation on either a 1:1 or 1.5:1 basis. Forests which are cleared and exceed the maximum area allowed must be replaced on a 3:1 basis.

**The State Reforestation Law** (NR 5-103): In 1988, the General Assembly passed legislation which requires the state to mitigate the loss of forest land from state funded construction projects. In 1989, the legislation was amended to include all governmental units within the state and projects (low income housing) which receive state funds. The law does two things. First, it requires that forest loss be minimized when possible through adjustments in construction plans. If designs can not be changed and forest land is lost, that loss must be replaced on an acre per acre basis on other state or government lands.

**The Seed Tree Law** (NR 5-501): The basic objective of the Seed Tree Law is to ensure reforestation of cut over land. The Law applies on five acres or more where loblolly, shortleaf or pond pine constitutes 25 percent or more of the live trees on each acre. The Law requires seed trees be left uncut for three years following a timber harvest. A landowner can clearcut, however, only after securing approval from the State Forester by agreeing to carry out an effective reforestation plan. This Law is necessary to avoid depletion of the resource and to counteract the trend of harvesting at a greater rate than replanting or regenerating.

## **FEDERAL GOVERNMENT**

### **Programs**

**Agricultural Conservation Program (ACP)** - This program is intended to provide funding to accomplish maximum conservation and environmental protection. It provides up to 65% of the costs of establishing and maintaining tree crops as well as agricultural conservation practices such as cover crops and grassed waterways.

The ACP Program is administered by the USDA Agricultural Stabilization and Conservation Service (ASCS). Technical assistance is provided by the Soil Conservation Service and the Department of Natural Resources Forest, Park and Wildlife Service.

Forestry Incentives Program (FIP) - This production oriented program was authorized by Congress in 1973 to share the cost of tree planting with private landowners. The federal share of these costs ranges up to 65%, depending upon the cost-share rate set by the county Agricultural Stabilization and Conservation Committee. Not all counties participate in the program so it is recommended that interested landowners contact their local ASCS office for specific information.

Conservation Reserve Program (CRP) - Created by the 1985 Farm Bill, the intent of this program is to take highly erodible acreage out of production for at least 10 years, if not permanently. A 50% cost-share for tree establishment is provided as well as annual rental payments for 10 years while the practice is being maintained. The program is administered by ASCS, technically assisted by SCS and Maryland DNR and complemented by MDA's Maryland Agricultural Cost-Share Program (see State CRP).

#### LAW

Public Law 96-451 - This federal incentive permits up to \$10,000 of capitalized reforestation costs each year to be eligible for a 10% investment tax credit (subtracted from taxes owed) and 7-year amortization (subtracted from gross income to compute adjusted gross income).

#### PRIVATE SECTOR

##### Forest Industry Cost-Share Program

Glatfelter Pulpwood Company: This corporation provides a 50% cost-share program on seedling orders from 2,000 to 20,000 trees (while funding lasts) in all but Maryland's D.C. metro counties.

Westvaco: This corporation provides a 50% cost-share program on seedling orders from 2,000 to 20,000 trees in Western and Southern Maryland.

TREPROGS.TXT

## Appendix H

# DRAFT

## GOALS AND OBJECTIVES

### GOAL I

Preserve and protect prime agricultural land to promote the continued viability of the agricultural industry.

#### OBJECTIVES:

Encourage participation in State and local preservation programs.

Encourage Best Management Practices that conserve the County's prime agricultural soils by requiring all participants in County and State land preservation programs to implement soil conservation plans.

Target 30,000 acres of prime agricultural land for a local preservation program

Encourage the support for agriculture as the preferred use within the County's Agricultural Zoned areas.

Evaluate the economic needs of the agricultural industry in order to assist the farming community in developing new or alternative markets.

### GOAL II

Direct development in the Rural Area away from existing farming operations in order to encourage the continuance of farming and reduce residential/agricultural conflict.

#### OBJECTIVES:

Encourage adequate buffer areas between farming operations and residential communities.

Encourage and provide incentives for the use of zoning mechanisms which allow the transferring of development rights from an agricultural area to an existing or future growth area.

Establish standards to designate areas of the County as rural preservation areas where Purchase of Development Rights and Transfer of Development Rights programs are focused.

### GOAL III

Provide open space and limit the area of land being utilized for residential purposes.

#### OBJECTIVES:

# DRAFT

Encourage the use of subdivision regulations which limit the area of development within a parcel and provide a significant amounts of open space.

Encourage the use of smaller lots with alternative standards for septic reserve areas.

Evaluate existing County septic reserve requirements and review alternative septic requirements

Lessen scattered rural development by encouraging new rural residences and neighborhoods to locate near designated Village Centers.

## GOAL IV

Preserve and promote rural village communities as focal points for activities and services in the rural area.

### OBJECTIVES:

Locate Village Centers to be compatible with the continuance of the agricultural economy and insure that they provide services essential to the farm community.

Minimize County expenditures on additional community facilities and services in the rural area by concentrating these in designated village centers.

Enhance the character of rural villages by protecting desirable existing qualities, promoting the compatibility of new development, and preserving the character of the surrounding rural landscape

## GOAL V

Protect and preserve the natural environment within the County's rural area.

### OBJECTIVES:

Protect identified sensitive natural features and habitat protection areas.

Protect both the quantity and quality of water supplies in the rural area from surface and subsurface pollution.

## GOAL VI

Preserve and protect the (natural) characteristics of the County's rural roadways while providing safe and efficient movement of people and goods.



# DRAFT

## Purchase of Development Rights Program

A Purchase of Development Rights Program (PDR) provides an agricultural landowner with an alternative way to obtain equity from his land without selling it for development purposes. The PDR program pays the landowner money for development rights on the property while restricting any future development. The Maryland Agricultural Land Preservation Program (MALPP) is an example of a PDR Program.

### MALPP

The Maryland Agricultural Land Preservation Program which was established in 1977, has preserved in excess of 180,000 acres of prime agricultural land from development throughout the State.

The State's approach is a two-step program allowing a landowner of agricultural land to initially commit to a preservation district and then to sell development rights to the State, therefore preserving the land in perpetuity. The first part of the program requires the forming of an Agricultural Preservation District--a minimum 5-year commitment not to develop the land. The second part of the program allows the property owner to sell development rights to the State. The State will pay landowners the difference between the fair market value and the agricultural value of the land as financial compensation for giving up the right to develop their land. To determine the value of a landowner's development rights, the State performs a fair market appraisal on the land. A formula is applied to the property value to determine its agricultural value. The difference between that fair market value and the agricultural value is the figure the state sets as the value for development rights.

Harford County currently has 152 Agricultural Preservation Districts totaling over 20,000 acres, of which approximately 5,000 acres are permanently preserved. Despite the Program's relative success in Harford County, the County still faces several problems with regard to its participation in the MALP Program. These problems include how development right values are determined, the length of time involved in receiving payments and the ability of State funding to meet County land preservation needs.

## Limitations of MALPP

The process used by the State in determining development right values tends to favor landowners with high development pressure and marginal soil quality. In particular, the formula used to determine agricultural value of the land places a higher value on land with good soils than on land with poor soils. For example, in comparing two farms, one with moderate soils and the other with higher quality soils and both having equal development pressure, the farm with the moderate quality soils would tend to get the higher value. The reason is that the farm with the moderate quality soils has a lower agricultural value and, therefore, the difference between its fair market value and agricultural value is greater. Since the State pays a landowner the difference between a property's fair market value and agricultural value, the farm with the poorer soils tends to get the higher value.

One of the problems the County faces in its participation in the MALP Program is the length of time involved in obtaining payment from the State. An average time frame is usually 18 to 24 months, with some landowners having to wait in excess of 3 years. Some of the reasons this process has become so lengthy are unavoidable. The State review process requires that 5 separate agencies review and approve all Development Right purchases; this in itself is a four to five month process. In addition, communication between the State and the landowner is often very slow. The Program has dramatically increased in size over the past 2 to 3 years while the staff size has remained unchanged.

In 1990, the MALP Program was unable to purchase any development rights in Harford County due to State budget limitations. As a result, the County may have missed an opportunity to preserve in excess of 5,000 additional acres of prime agricultural land. This problem raises the issue of whether or not the County should be completely dependent on the State program to meet its land preservation goals.

## Local Land Preservation

The preservation of agricultural land by purchasing development rights (when adequately funded) has proven to be successful in Harford County and continues to receive support from the rural and non rural communities. Because of the support for agricultural preservation, the County must consider establishing a local Purchase of Development Rights Program that addresses the problems associated with the State program.

The creation of a local Purchase of Development Rights Program would allow the County to establish its own standards for determining easement value, set it's own procedures for paying landowners and control funding for the program locally.

# DRAFT

Highlights of the local agricultural land preservation program features are:

County:

- Determines land evaluation process.
- Determines it's own evaluation system.
- Able to purchase farms with high quality soils
- Program would be more flexible than State Program in meeting the changing needs of the rural community
- Program can target a specified area for agricultural easements
- Still be eligible to participate in the MALP Program

A Purchase of Development Rights Program should evaluate farms based not only on development pressure, but also with a heavy emphasis on soil productivity and best management practices. Farms with better soils would, therefore, receive higher evaluations and prices. In addition, this program should have the ability to make payments to landowners within a reasonable amount of time and have a solid County funding source.

**RECOMMENDATION:**

Develop and implement a local Purchase of Development Rights Program which places emphasis on preserving the County's prime agricultural soils.

# DRAFT

## Transfer of Development Rights

An innovative approach to preserving agricultural land that is becoming more and more popular throughout the country is a Transfer of Development Rights Program. The Transfer of Development Rights (TDR) Program promotes the shift of residential development rights from designated agricultural areas to other locations where growth is planned.

There are two basic steps necessary to operate a TDR program: 1) establishment of a "sending area" from which development rights are transferred; and 2) designation of "receiving areas" where the land and public services are capable of absorbing development rights. Once the Sending and Receiving Areas are designated, individuals can purchase development rights from landowners in the Sending Areas and use them within the designated Receiving Areas when and where the County deems appropriate. This type of program facilitates development, while preserving farmland and open space.

Though seldom utilized, a limited Transfer of Development Rights Program currently exists in Harford County, though seldom utilized. The program is restricted to transferring development rights to and from adjacent properties or properties within 500 feet of the sending property. This type of TDR Program does not facilitate the preservation of farming communities since the development is not removed from the community, but is merely shifted from one property to the next.

The primary advantage to having an active TDR program which encompasses both a sending and receiving area is that agricultural land within the sending area can be permanently preserved by the elimination of development rights from the area, without government becoming involved in terms of purchasing these development rights.

Any transferring of development rights within the County TDR Program must be reported to the Department of Planning and Zoning and properly recorded in the Harford County Land Records Office. The price of development rights is determined by negotiation between the owner and purchaser. Because local government does not get directly involved in determining the market value of development rights, it is imperative that an adequate area and available density be available to receive the development rights purchased from the targeted sending area. If adequate area and density are not provided to receive the transferred development rights, a "buyers market" occurs and the value of transferable development rights becomes extremely deflated.

One of the most important factors in determining the success of a TDR program is how the County facilitates the purchasing of these development rights.

## Facilitating TDR Program

There are several components that should be used to facilitate the purchasing of development rights in a TDR Program.

- **Require all undeveloped properties within the County's receiving areas to purchase development rights through the TDR Program.**

The county should place an overlay zone on all undeveloped properties within the designated receiving areas which sets a base density and a maximum density for development. Any property developing at a density greater than the base density should have to purchase those development rights from a landowner within the designated sending area. The maximum density set by an overlay zone will depend on the location of the property being developed. Properties within the County's Rural Residential In-Fill areas should be developed under Community Conservation Design Standards, with a maximum density of 1 dwelling unit per 2 acres. Properties within the designated resource areas should be developed under Resource Conservation design standards with a maximum density of 1 dwelling unit per 5 acres. Properties developing under the base density of the overlay zone should be required to develop under Rural Conservation design standards with a maximum density equivalent to agricultural zoning. Any property developing under an overlay zone within the Development Envelope should have a maximum density equivalent to existing zoning.

- **Develop a more restrictive agricultural density than current agricultural zoning permits.**

Harford County should limit development within the County's designated Sending Area by reducing the Agricultural density of 1 dwelling unit per 10 acres to a density more appropriate for an agricultural area. However, any landowners affected by this change in density should be permitted to transfer development rights at the current agricultural zoning density.

- **Allow for density bonuses.**

Another component should permit density bonuses under the strict limitations of an overlay zone. If a landowner within a receiving area serviced by water and sewer can demonstrate that the property being developed can absorb more development than the overlay zone permits and still meet County subdivision regulations and Adequate Public Facilities requirements, the County should allow additional development rights to be used on the property if they are purchased through the TDR Program.

The next step in implementing a TDR Program is deciding on the location of the Sending and Receiving Areas.

## Appendix I

1 WHEREAS, Harford County contains many areas of special  
2 environmental significance, including forests, wetlands, farmland,  
3 wildlife habitat, watersheds, river corridors, geological  
4 formations, archeological sites, scenic landscapes, areas of  
5 historical significance, and areas for public recreation; and

6 WHEREAS, These areas provide economic, aesthetic, biological  
7 and environmental benefits to Harford County citizens and should  
8 be preserved for future county citizens; and

9 WHEREAS, Although Harford County's participation in the state  
10 agricultural land preservation program continues to be successful,  
11 having resulted to date in the preservation of more than 4,500  
12 acres of farmland, the program is geared to only one of the many  
13 types of land deserving of preservation; and

14 WHEREAS, Harford County also participates in the state's  
15 Program Open Space, which enables the county to purchase, hold and  
16 maintain land for public use and recreation; and

17 WHEREAS, It is environmentally important that many more acres  
18 of land be maintained in their natural state than any government  
19 can reasonably be expected to purchase, hold and maintain; and

20 WHEREAS, Private and quasi-public organizations such as the  
21 Historical Society of Harford County, the Deer Creek Watershed  
22 Association, the Maryland Environmental Trust, and the Chesapeake  
23 Bay Foundation, the Izaak Walton League and the Gunpowder Valley  
24 Conservancy work to preserve selected areas of significance, but  
25 there is no comprehensive, county-oriented, county-funded effort  
26 to preserve areas of environmental significance in the county; and

27 WHEREAS, A commitment to the preservation and protection of

the environment is essential for continued human existence, health and prosperity; and

WHEREAS, It is in the best interests of Harford County and its present and future citizens to work with landowners to preserve environmentally significant properties on a voluntary basis.

NOW, THEREFORE

Section 1. Be It Enacted By The County Council of Harford County, Maryland, That new Article IVA, Environmental Land Preservation Commission, be, and it is hereby, added to Part 2, Nonbinding Advisory Boards, of Chapter 9, Boards, Commissions, Councils and Agencies, of the Harford County Code, as amended, all to read as follows:

Chapter 9. Boards, Commissions, Councils and Agencies.

Part 2. Nonbinding Advisory Boards.

Article IVA. ENVIRONMENTAL LAND PRESERVATION COMMISSION.

SECTION 9-20.1.

A. THERE IS HEREBY CREATED THE ENVIRONMENTAL LAND PRESERVATION COMMISSION, CONSISTING OF 5 MEMBERS APPOINTED BY THE COUNTY EXECUTIVE AND CONFIRMED BY THE COUNTY COUNCIL.

B. ~~COMMITTEE~~ COMMISSION MEMBERSHIP SHALL BE REPRESENTATIVE OF THE COUNTY'S POPULATION WITH RESPECT TO RACE, GENDER, AND GEOGRAPHY.

C. EACH MEMBER SHALL BE A REGISTERED VOTER IN HARFORD COUNTY.

D. (1) THE TERM OF A MEMBER IS 5 YEARS.

(2) THE TERMS OF THE MEMBERS ARE STAGGERED AS REQUIRED



Y THE TERMS PROVIDED FOR MEMBERS ON FEBRUARY 1, 1990 1991.

(3) AT THE END OF A TERM, A MEMBER CONTINUES TO SERVE UNTIL A SUCCESSOR IS APPOINTED AND QUALIFIES.

(4) A MEMBER APPOINTED AFTER A TERM HAS BEGUN SERVES ONLY FOR THE REMAINDER OF THE TERM AND UNTIL A SUCCESSOR IS APPOINTED AND QUALIFIES.

E. THE COMMITTEE COMMISSION SHALL:

(1) WORK WITH THE MARYLAND ENVIRONMENTAL TRUST TO PROMOTE THE TRUST IN THE COUNTY AND TO SOLICIT DONATION TO THE TRUST OF CONSERVATION EASEMENTS ON LAND THAT MEETS THE TRUST'S CRITERIA; AND

(2) REVIEW AND MAKE RECOMMENDATIONS ON THE PROGRAM DEVELOPED BY THE DEPARTMENT OF PLANNING AND ZONING UNDER BILL NUMBER 90-74.

Section 2. And Be It Further Enacted, That the Department of Planning and Zoning shall, on or before June 1, 1991:

A. develop a program for county purchase of development rights on environmentally significant properties that do not qualify for the state agricultural land preservation program;

B. include in the program:

(1) separate eligibility criteria for land in the Development Envelope; *with the exception of the 10,000 acre*

(2) separate eligibility criteria for land outside the Development Envelope; and

(3) weighted criteria similar to those used in the county's agricultural land preservation supplemental payment

program; and

C. report to the County Council the Department's opinion as to whether the program should be established as:

(1) a cooperative venture with the Maryland Environmental Trust;

(2) an independent, local land trust;

(3) a county government land trust;

(4) some other entity; or

(5) any combination of these.

Section 3. And Be It Further Enacted, That the County Council may by resolution extend the June 1, 1991, deadline imposed by Section 2 of this Act if the County Executive, on or before April 1, 1991, requests an extension.

Section 4. And Be It Further Enacted, That the terms of the initial members of the Environmental Land Preservation Commission shall expire as follows:

A. 2 members in 1993;

B. 2 members in 1994; and

C. 1 member in 1995.

Section 5. And Be It Further Enacted, That this Act shall take effect 60 calendar days from the date it becomes law.

EFFECTIVE: February 4, 1991

WHEREAS, County Council Bill No. 90-74 requires the Department of Planning and Zoning to develop, by June 1, 1991, a program for county purchase of development rights on environmentally significant properties in Harford County; and

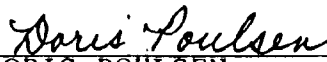
WHEREAS, Bill No. 90-74 allows the County Council to extend the deadline if the County Executive, on or before April 1, 1991, requests an extension; and


WHEREAS, On March 14, 1991, the County Executive through her Director of Planning, William G. Carroll, requested that the deadline be extended; and

WHEREAS, the Council believes that the deadline should be extended in order to grant the Department of Planning and Zoning the necessary time to create an effective, well-crafted program.

NOW, THEREFORE, BE IT RESOLVED By the County Council of Harford County, Maryland, that the deadline established by County Council Bill No. 90-74 regarding development by the Department of Planning and Zoning of a program for County purchase of development rights on environmentally significant properties is hereby extended to October 1, 1991.

ATTEST:

  
DORIS POULSEN  
Secretary of the Council

  
JEFFREY D. WILSON  
Council President

ADOPTED: May 7, 1991

M E M O

14 February 1992

TO: ELPC members  
FROM: Anne  
RE: Draft workplan for 2/19 meeting

=====

Now that we have developed the purpose and criteria for land protection, we need to take a step back and consider how the overall program will work.

Following are issues in outline form to be used in the development of a draft workplan for the program. The workplan can be used to develop the report we are to submit to the County Executive. If we plan to finalize the report by June 1992, we could plan to have each topic prepared for by the suggested dates on the left side of the outline.

Please be prepared to discuss the schedule, specific sections, and changes or additions to the workplan as you see fit.

Workplan

- March 1. Introduction - Why preserve land
- March 2. Implementation Measures
- A. Responsibilities
    - 1) Project Review for easement acquisition
    - 2) Budgeting and Planning
    - 3) Land Transactions
      - a. Legal issues
      - b. Resource issues
      - c. Ethical issues
  - B. Person on DAC
  - C. PDR program
  - D. TDR program
  - E. Coordination with Harford Land Trust
  - F. Determine need for quasi-government 509(a)3 land trust
  - G. Long-range strategy for stewardship
    - 1) Legal entity
    - 2) Enforcement
    - 3) Management
      - a. Size and quality of property relative to the value or purpose required for acquisition
      - b. Potential for a sound management

plan

- i. Small, scattered easements are difficult to monitor and enforce
- ii. IRS suspicion of small "backyard" easements claimed for deductions
- iii. Potential for additional acreage
- iv. Involvement of adjacent property owners in group easement donations
- c. Minimum size requirement must be established for criteria inside and outside the Development Envelope
- 4) "Triage" - Development of objectives to ensure that acquisition of one site at expense of others is worth time, effort and money spent
- 5) Monitoring
  - a. Costs
  - b. Stewardship
    - i. volunteer work force
    - ii. partnerships with local associations
      - a) Harford County Community Coalition
      - b) Susquehanna Environmental Center
      - c) Forestry Board

April

3. Funding Mechanisms

- A. Tax Revenues
  - 1) Tax credit
  - 2) Tax abatement
  - 3) Real estate transfer tax
  - 4) Other dedicated taxes
- B. Federal funding sources
  - 1) Forest Legacy (2-3 years away)
  - 2) Surface Transportation Act
- C. Other funding sources
  - 1) License plate sticker
  - 2) Contributions (ER)
- D. Easements must meet IRS Criteria for Deductibility.

May

4. Public relations/Educational component

- A. Conflicts of interest with the County
  - 1) Ethical problems associated with accepting certain types of easements
    - a. Legal
    - b. Financial

- 2) Include all County agencies interacting with projects (eg Parks and Rec. for maintenance, DPW for engineering evaluations)

B. Public education

- 1) Newspaper articles
- 2) Periodic forums for review of projects
  - a. alleviate public image problems for the County
  - b. demonstrate to the public that the program serves public's purposes
  - c. educate and engender program support and gather volunteers for stewardship
- 3) Field trips led by volunteers to view program accomplishments
- 4) Stewardship partnerships and volunteers give the public the opportunity to
  - a. voice concerns
  - b. participate in decision-making process

## Appendix J

**Ordinances Reviewed in the preparation of the  
Harford County Tree and Forest Preservation  
Bill; 90-17.**

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- \* Anne Arundel County: Forests, Woodlands and Trees - Preservation and Protection During the Development Process, February 1990.
- \* Fairfax County, Virginia: Tree Cover Requirements, April 1990.
- \* Fulton County, Georgia: Fulton County Tree Preservation Ordinance, January 1986.
- \* Montgomery County Planning Department: Guidelines for Tree Conservation, November 1989.
- \* Prince Georges County: Woodland Conservation and Tree Preservation Policy Document, April 1989.
- \* Savannah, Georgia: Land Clearing and Tree Protection Ordinance, 1989.
- \* The City of Annapolis: Trees in Development Areas, November 1988.
- \* Valdosta, Georgia: Landscape Ordinance, 1990.





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